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THE JOURNAL OF
LAND & PUBLIC UTILITY
ECONOMICS



THE COST OF RAILWAY CAPITAL
UNDER THE TRANSPORTATION ACT OF 1920

HERBERT B. DORAU

A STUDY OF UTILITY FINANCIAL STRUCTURES:
REVENUE PRODUCTION RATIOS

A. E. PATTON AND O. GRESSENS

ABSENTEE FARM OWNERSHIP IN THE
UNITED STATES

HOWARD A. TURNER

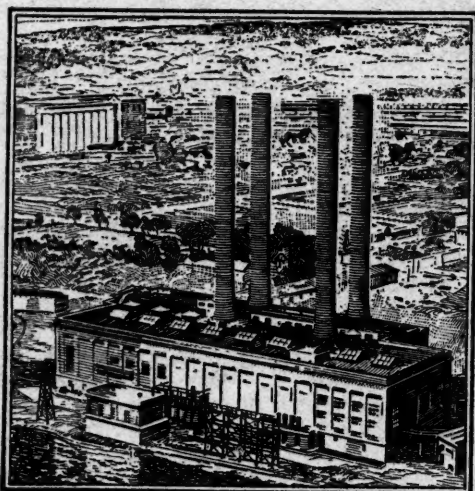
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VOLUME III
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THE COST OF RAILWAY CAPITAL UNDER THE TRANSPORTATION ACT OF 1920¹

By HERBERT B. DORAU

THE return to capital constitutes a most important element in the cost of the services of public utility industries. The technical conditions of production necessitate the use of a large amount of fixed capital goods, the rate of capital turnover is slow, and consequently a significant part of every dollar of revenue must go for the payment of the "wages of capital." With this commonly recognized fact in mind, it seems strange indeed that so little attention has been given to the problem of the "rate of wages" to be paid capital in our regulated industries. With meticulous care courts, commissions, and experts have analyzed the problem of the rate base in answer to the question "what is fair value," but only in rare circumstances have any similarly analytical inquiries been made as to what con-

stitutes a fair rate of return. Points of reference for the determination of *fair value* have been worked over until there has been reached a degree of refinement which, if not undesirable on its own account, is at least strangely out of line with the degree of exactness that obtains with respect to the rate of return.

It is only too obvious that the real matter of concern to the management and customer alike is not the rate base or the rate of return but the return itself, and that both base and rate are indispensable requisites for the determination of the return. Extra refinement of either one of these requisites beyond that attained in the other seems fruitless. Yet in one rate adjustment case after another we find both company and commission striving to validate elements in the rate base which represent mere fractions of the value of the total property and which, if gained, are vitiated by the off-hand manner in which the rate of return is applied.

¹ The writer wishes to express his appreciation for the very material assistance of Mr. J. H. Hande in providing certain essential information used in this study.

RTH.

Explanations of this anomalous situation are not difficult to offer. Whether it is true or not, the rate base has seemed to be more susceptible to accurate measurement. But with all that, the fact remains that very little attention has been given to the problem of the rate of return, and the possibilities of more accurate approximations have not been exhausted.²

This study is an excursion into one aspect of the problem in the case of the steam railway utility. The steam railway utility affords an excellent opportunity for a study of this character because it is now substantially under one regulatory authority—a legislative act which embodies the most unique and daring treatment of the rate of return ever attempted in state or federal legislation.

This analysis is concerned with the cost of steam railway capital since the passage of the Transportation Act of 1920. It is limited to the steam railway utility and to this particular period because for this utility and for this period only are substantially all the facts available and reasonably accurate. The cost of borrowed capital has always been recognized as an important point of reference for the determination of a fair rate of return, but it is obviously not reasonable to assume that the price of borrowed and secured capital is the same as the price of owned and unsecured capital. It is hoped further that no reader will find in this study any implication of the idea that the fair rate of return is the rate at which the industry can borrow capital. That there is a relationship seems clear. What the ratio of the price of borrowed capital is to the necessary price of total capital

is another problem, to which it is hoped that some contribution can be made later.

Pertinent Provisions of the Transportation Act

By the Transportation Act of 1920 the Interstate Commerce Commission is authorized and directed to prescribe just and reasonable rates which "will, under honest, efficient, and economical management and reasonable expenditure for maintenance of way, structures, and equipment, earn an aggregate annual net railway operating income equal as nearly as may be to a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation."

This general statement of the doctrine of a fair return upon the fair value is made more specific and definite in paragraph 3 of section 15a. The Commission is ordered "from time to time to determine and make public what percentage of such aggregate property value constitutes a fair return thereon and such percentage shall be uniform for all rate groups or territories which may be designated by the Commission." Then follows another provision which implies full legislative recognition of the relationship between the rate of return and railway credit. This relationship between the problem of attracting capital to the industry and the rate of payment for such capital is an interesting one and one which, although often expounded by the courts, is put into statutory form for the first time in this Act. In this Act, Congress orders the Commission to "give due consideration, among other things, to the transportation needs of the country and the necessity (under honest, efficient, and economical management of existing

² EDITORIAL NOTE. See also the articles by Mr. Bickley and Mr. Dozier in this issue.

transportation facilities) of enlarging such facilities in order to provide the people of the United States with adequate transportation."

Certain of the more important provisions of the Act and policies of the Commission which relate to the problem may well be reviewed briefly. The passage of the Transportation Act of 1920^{*} is sufficiently significant to mark that date as the end of one period in the history of federal regulation of railroads and the beginning of another. This Act introduced into the scheme of federal regulation some radical departures from previous law and policy. One student of the subject states that this Act amended in some respects nearly every section of the then existing Act to Regulate Commerce.⁴ For the first time Congress provided, among other things, that the Interstate Commerce Commission shall have the power to regulate the issuance of railroad securities and stated also a definite legislative rule of rate-making. Both of these provisions are of peculiar interest and importance in the study of public utility finance.

The provisions for regulating security issues, and the incidental rules and regulations of the Interstate Commerce Commission in its application of the Act, have provided a body of information concerning railway financing previously unavailable and, for the industry as a whole, unknown. The legislative rule of rate-making sets forth the basis for determining, within certain limits, the actual rate of return to be received by capital in the industry or such divisions of the industry as the Commission may make. The rate of

return to be allowed capital in the railway industry is a matter of considerable importance in railway financing due to its bearing on the amount of capital which will be used to provide transportation facilities and the price at which that amount will be available.

The Act definitely fixed the fair rate of return for the first two years⁵ at 5½%, giving the Interstate Commerce Commission the discretion, however, of adding not to exceed ½ of 1% to make provision for capital expenditures chargeable to the capital account. The rate increases granted in 1920 were intended to yield a return of 6%. On March 1, 1922,⁶ the commission, exercising its discretion under the law, fixed 5.75% as the fair rate of return.⁷

It is important in this connection to understand that the rate of return as fixed by the Commission does not apply to individual roads but only to such regional groupings as the Commission may have designated as desirable and necessary to carry out the Act. Thus the rate of return actually earned by any one road might be very different from the rate allowed to the carriers of the region as a whole or from that earned by other carriers in the same region, depending, first, upon whether the rates established for the region actually resulted in the desired rate of return on the total value and, second, upon the relative efficiency and all other factors affecting the income of a particular company.

Further provisions of the Act were intended to limit this variation in the rate of return, at least when in the direction of a higher return. It was pro-

^{*} The Act was approved by the President and became law February 28, 1920, just one day before becoming effective.

⁴ Cunningham, W. J., *American Railroads: Government Control and Reconstruction Policies* (Chi-

cago, A. W. Shaw Company, 1922), p. 220.

⁵ From March 1, 1920, to March 1, 1922.

⁶ 68 I. C. C. 676.

⁷ Under authority of paragraph 3 of section 15a.

vided that if a carrier earns in excess of 6% on its property value, one-half of such excess is to be paid into a reserve fund maintained by the carrier, which may be drawn upon in years when earnings do not equal 6% for the purpose of paying rentals, interests, and regular dividends. After this fund equals 5% of the property value, the carrier's portion of excess earnings may be used for any lawful purpose. But one-half of the excess earnings over 6% shall be paid to the Commission, which is empowered to administer the contingent fund to be built up in this manner. Higher rates of return are thus possible, but it is interesting to note the number of companies reporting excess returns. Out of 798 companies reporting to the Commission in the calendar year 1924, only 22 reported excess income. In 1923, 47 out of 874 reports showed excess income. The amount of such excess income reported was \$6,830,374.87 in 1923 and \$1,182,221.97 in 1924. The Commission warns in its *39th Annual Report* that the excess income reported was not computed upon values fixed by the Commission and that final adjustments may show very different results. The bulk of the payments made by these carriers were made under protest, and, even though section 15a was upheld as constitutional by the Supreme Court,^{*} administration of this provision has been so difficult that no more definite information than this is available on how many carriers are experiencing rates of return in excess of 6%.

What Does Cost of Capital Mean?

Several meanings are attached to the phrase "cost of capital," depending usually upon which element in the total cost

is being emphasized. In a very restricted sense, the term "cost of capital" may be understood to mean merely the cost of hiring capital. Included in this are principally (1) the difference between the price received by the company for the securities and the price at which the investment banker offers them to the investor, and (2) the expenses incidental to the financing absorbed directly by the company. The first of these elements in the cost of hiring capital is accurately available for the financing of steam railways since May, 1920, and this is by far the more important element. The costs incidental to financing which are absorbed directly by the company are relatively unimportant in most instances and, moreover, are not accurately known or ascertainable in their entirety.

But the cost of hiring capital is only one part of the cost of capital. There remains the compensation for the use of capital, which is recognized in the form of current interest payments plus the proper deduction for that part of the discount which is postponed interest or minus the proper credits on account of premium received. The total cost of capital is the total of the cost of hiring plus the return in the form of current interest and amortization of discount.

The net yield to the investor in railway securities is by far the more important of these two main elements in the cost of money, although the cost of hiring is, as we shall see later, of such significance that it cannot properly be disregarded.

Average Net Yield to Investors

The average yield on new railway security issues at the offering price to investors is the first important fact to obtain and the most easily and generally

^{*} Dayton-Goose Creek Case, 263 U. S. 456 (1924).

obtainable. Several records of corporate financing give us the necessary information for computing this figure.*

The average yield at market price on

* The records of new security issues as compiled by the *Commercial and Financial Chronicle* have been found most acceptable and are used as the basis for this particular part of this study.

new railway security issues is set forth by classes of securities for the years 1919 to 1926 in detail in Table I. The volume of financing during the years 1919 and 1920 was comparatively light, so that the number of issues used to make up the average is hardly satisfactory. Such issues as were made in

TABLE I. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW STEAM RAILWAY SECURITY ISSUES, BY TYPES OF SECURITIES, 1919-1926

YEAR AND QUARTER	ALL SECURITIES		BONDS		NOTES		DEBENTURES		CERTIFICATES	
	Yield per Dollar	Yield per Issue	Yield per Dollar	Yield per Issue	Yield per Dollar	Yield per Issue	Yield per Dollar	Yield per Issue	Yield per Dollar	Yield per Issue
The Year 1919.....	6.10	5.91	6.10	5.91	6.26	6.20	.....	.....	5.67	5.68
First Quarter.....	5.99	6.02	6.07	6.15	6.11	6.13	.....	.....	5.73	5.73
Second Quarter.....	6.19	5.62	5.31	5.28	6.43	6.31	.....	.....	5.68	5.59
Third Quarter.....	6.24	6.16	6.24	6.16	.....	.....	.....	.....	.....	.....
Fourth Quarter.....	6.00	6.00	6.00	6.00	.....	.....	.....	.....	.....	.....
The Year 1920.....	6.93	6.94	6.92	6.80	6.93	7.07	7.00	7.00	6.92	6.93
First Quarter.....	6.73	6.69	6.87	6.70	.....	.....	.....	.....	6.65	6.68
Second Quarter.....	6.95	7.01	6.60	6.60	7.00	7.00	.....	.....	7.01	7.06
Third Quarter.....	7.03	7.25	7.00	7.00	7.50	7.50	.....	.....	.....	.....
Fourth Quarter.....	6.94	6.86	7.00	7.00	.....	.....	7.00	7.00	6.92	6.93
The Year 1921.....	6.42	6.05	6.61	6.06	7.60	7.50	6.14	6.14	6.06	6.01
First Quarter.....	6.62	6.68	6.58	6.58	.....	.....	.....	.....	6.74	6.71
Second Quarter.....	6.82	6.72	6.81	6.41	7.60	7.50	.....	.....	6.73	6.70
Third Quarter.....	6.15	6.00	6.37	6.11	.....	.....	6.65	6.65	5.86	5.96
Fourth Quarter.....	5.39	5.67	5.37	5.32	.....	.....	5.13	5.13	5.72	5.79
The Year 1922.....	5.58	5.63	5.72	5.82	5.24	5.34	.....	.....	5.42	5.58
First Quarter.....	5.82	5.83	5.95	5.87	5.15	5.15	.....	.....	5.70	5.84
Second Quarter.....	5.39	5.60	5.41	5.85	5.46	5.44	.....	.....	5.37	5.60
Third Quarter.....	5.18	5.19	5.30	5.33	.....	.....	.....	.....	5.08	5.15
Fourth Quarter.....	5.82	5.49	6.04	5.95	.....	.....	.....	.....	5.14	5.19
The Year 1923.....	5.37	5.51	5.39	5.52	5.75	5.62	5.13	5.68	5.34	5.48
First Quarter.....	5.16	5.30	5.14	5.33	.....	.....	.....	.....	5.17	5.28
Second Quarter.....	5.48	5.61	.....	.....	5.75	5.56	5.38	6.02	5.46	5.55
Third Quarter.....	5.27	5.48	5.25	5.45	.....	.....	.....	.....	5.32	5.51
Fourth Quarter.....	5.55	5.67	5.65	5.72	5.75	5.75	5.00	5.00	5.47	5.68
The Year 1924.....	5.18	5.24	5.39	5.49	5.12	5.34	4.94	4.94	4.89	5.03
First Quarter.....	5.31	5.38	5.43	5.38	5.36	5.32	.....	.....	5.10	5.38
Second Quarter.....	5.45	5.38	5.76	5.69	5.37	5.37	.....	.....	5.04	5.13
Third Quarter.....	4.94	5.06	5.10	5.30	4.67	5.13	4.94	4.94	4.63	4.78
Fourth Quarter.....	5.00	5.08	5.30	5.60	5.15	5.55	.....	.....	4.60	4.65
The Year 1925.....	5.25	5.24	5.38	5.51	5.33	5.58	.....	.....	4.87	4.85
First Quarter.....	5.27	5.42	5.31	5.51	5.40	5.70	.....	.....	4.89	5.11
Second Quarter.....	5.06	4.88	5.26	5.29	.....	.....	.....	.....	4.64	4.59
Third Quarter.....	5.53	5.65	5.62	5.86	4.87	4.87	.....	.....	5.20	5.20
Fourth Quarter.....	5.26	5.14	5.30	5.43	.....	.....	.....	.....	5.20	4.86
The Year 1926.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
First Quarter.....	5.11	5.12	5.26	5.32	5.00	5.00	.....	.....	4.72	4.71
Second Quarter.....	4.69	4.85	4.80	5.10	4.83	4.80	.....	.....	4.59	4.65
Third Quarter.....	5.08	5.18	5.11	5.42	.....	.....	.....	.....	4.64	4.75

TABLE II. COMPARISON OF PRICE TO COMPANY AND COST TO INVESTOR AT OFFERING PRICE OF BONDS ISSUED BY STEAM RAILWAYS, 1920*-1926

YEAR AND QUARTER	(M) PAR VALUE SOLD†	NO. OF ISSUES	PRICE RECEIVED BY COMPANY		VALUE AT OFFERING PRICE		DIFFERENCE IN PRICE TO COMPANY AND INVESTOR			
			(N) Total—Dollars	(O) Per Hundred	(X) Total—Dollars	(Y) Per Hundred	(Z) Total—Dollars	(Y—O)	(Z) (X)	(Z) (N)
The Year 1920*	\$25,000,000	1	24,132,500.00	96.53	25,000,000.00	100.00	867,500.00	3.47	3.470	3.594
Third Quarter	25,000,000	1	24,132,500.00	96.53	25,000,000.00	100.00	867,500.00	3.47	3.470	3.594
Fourth Quarter										
The Year 1921	342,104,000	10	316,616,563.90	92.55	332,162,458.00	97.09	15,545,894.00	4.54	4.680	4.910
First Quarter	75,000,000	2	71,550,000.00	95.40	74,437,500.00	99.25	2,887,500.00	3.85	3.879	4.036
Second Quarter	8,000,000	2	7,850,000.00	98.13	8,130,000.00	101.63	280,000.00	3.50	3.444	3.567
Third Quarter	248,000,000	3	227,675,000.00	91.80	239,680,000.00	96.65	12,005,000.00	4.85	5.009	5.273
Fourth Quarter	11,104,000	3	9,541,563.90	85.93	9,914,958.00	89.29	373,394.00	3.36	3.766	3.913
The Year 1922	304,487,800	26	282,000,650.50	92.61	292,801,196.50	96.16	10,800,546.00	3.55	3.689	3.830
First Quarter	132,157,000	10	123,036,630.00	93.10	127,642,210.00	96.58	4,605,580.00	3.48	3.608	3.743
Second Quarter	110,432,000	7	102,544,360.00	92.86	106,487,000.00	96.43	3,943,540.00	3.57	3.703	3.846
Third Quarter	34,702,300	3	31,537,604.50	90.88	32,729,208.00	94.31	1,191,603.50	3.43	3.621	3.778
Fourth Quarter	27,196,500	6	24,882,056.00	91.49	25,941,878.50	95.39	1,059,822.50	3.90	4.085	4.259
The Year 1923	155,841,000	19	146,345,429.10	93.91	150,473,180.00	96.56	4,127,750.90	2.65	2.743	2.821
First Quarter	25,834,000	6	25,076,328.00	97.07	25,480,200.00	98.63	403,872.00	1.56	1.585	1.611
Second Quarter	23,447,000	2	22,426,601.10	95.65	22,937,530.00	97.83	510,928.90	2.18	2.227	2.278
Third Quarter	19,010,000	3	17,603,500.00	92.60	18,104,500.00	95.24	500,950.00	2.64	2.767	2.846
Fourth Quarter	87,550,000	8	81,239,000.00	92.79	83,951,000.00	95.89	2,712,000.00	3.10	3.230	3.338
The Year 1924	431,252,000	41	405,102,536.80	93.94	418,745,865.00	97.10	13,643,328.20	3.16	3.258	3.368
First Quarter	71,800,000	10	67,206,090.00	93.60	69,531,302.50	96.84	2,325,212.50	3.24	3.344	3.460
Second Quarter	150,649,000	14	140,027,010.00	92.95	145,252,927.50	96.42	5,225,917.50	3.47	3.598	3.732
Third Quarter	119,800,000	8	113,584,500.00	94.81	117,173,500.00	97.81	3,589,000.00	3.00	3.063	3.160
Fourth Quarter	89,003,000	9	84,284,936.80	94.70	86,788,135.00	97.51	2,503,198.20	2.81	2.884	2.970
The Year 1925	298,395,500	28	280,512,106.50	94.01	289,318,942.50	96.96	8,806,836.00	2.95	3.044	3.140
First Quarter	37,692,000	5	34,662,250.00	91.96	35,760,990.00	94.88	1,098,740.00	2.92	3.072	3.170
Second Quarter	135,702,000	11	128,877,557.50	94.97	132,931,667.50	97.96	4,054,110.00	2.99	3.050	3.146
Third Quarter	72,544,000	4	67,366,939.00	92.86	69,270,740.00	95.49	1,903,801.00	2.63	2.748	2.826
Fourth Quarter	52,457,000	8	49,605,360.00	94.56	51,355,545.00	97.90	1,750,185.00	3.34	3.408	3.528
The Year 1926										
First Quarter	49,489,000	7	46,408,642.00	93.78	47,883,955.00	96.75	1,474,412.00	2.97	3.079	3.177
Second Quarter	43,672,000	7	42,268,100.00	96.79	43,350,400.00	99.26	1,082,300.00	2.47	2.497	2.561

* Beginning with May, 1920, the date of the first applications under the Each-Cummins Act.

† All issues over \$100,000 par value, for which both the price to the company and to the investor were available, were used.

THE COST OF RAILWAY CAPITAL

7

TABLE III. COMPARISON OF PRICE TO COMPANY AND COST TO INVESTOR AT OFFERING PRICE OF EQUIPMENT TRUST CERTIFICATES ISSUED BY STEAM RAILWAYS, 1920*-1926

YEAR AND QUARTER	(M) PAR VALUE SOLD†	No. OF ISSUES	PRICE RECEIVED BY COMPANY		VALUE AT OFFERING PRICE		DIFFERENCE IN PRICE TO COMPANY AND INVESTOR			
			(N) Total—Dollars	(O) Per Hundred	(X) Total—Dollars	(Y) Per Hundred	(Z) Total—Dollars	(Y-O)	(Z) (X)	(Z) (N)
The Year 1920*										
First Quarter.....	\$15,007,000	3	14,476,535.20	96.47	15,074,507.50	100.45	597,972.30	3.98	3.967	4.131
Second Quarter.....	15,007,000	3	14,476,535.20	96.47	15,074,507.50	100.45	597,972.30	3.98	3.967	4.131
Third Quarter.....	26,239,600	9	25,623,518.40	97.66	26,267,029.90	100.10	641,511.50	2.44	2.442	2.503
Fourth Quarter.....	19,425,000	4	18,858,390.00	97.08	19,407,300.00	99.91	548,910.00	2.83	2.828	2.911
The Year 1921.....										
First Quarter.....	6,514,600	4	6,501,298.40	99.80	6,574,249.90	100.92	72,951.50	1.12	1.110	1.122
Second Quarter.....	300,000	1	263,830.00	88.61	285,480.00	95.16	19,650.00	6.55	6.883	7.392
Third Quarter.....										
Fourth Quarter.....										
The Year 1922.....										
First Quarter.....	93,409,000	21	90,167,094.50	96.53	92,224,817.50	98.73	2,057,723.00	2.20	2.231	2.282
Second Quarter.....	600,000	1	572,400.00	95.40	594,000.00	99.00	21,600.00	3.60	3.636	3.773
Third Quarter.....	17,685,000	3	17,284,800.00	97.74	17,678,880.00	99.97	394,080.00	2.23	2.229	2.280
Fourth Quarter.....	50,540,000	7	48,579,916.50	96.10	49,746,866.50	98.43	1,175,950.00	2.33	2.364	2.421
The Year 1923.....										
First Quarter.....	24,584,000	10	23,738,978.00	96.56	24,205,071.00	98.46	466,093.00	1.90	1.926	1.963
Second Quarter.....	273,198,000	44	262,554,659.00	96.10	269,516,897.00	98.65	6,962,238.00	2.55	2.583	2.652
Third Quarter.....	44,995,000	8	43,418,652.50	96.50	44,743,594.50	99.44	1,324,942.00	2.94	2.961	3.052
Fourth Quarter.....	133,173,000	19	128,614,045.00	96.58	131,774,811.00	98.95	3,160,766.00	2.37	2.399	2.458
The Year 1924.....										
First Quarter.....	25,815,000	7	24,833,295.00	96.20	25,384,237.50	98.33	550,942.50	2.13	2.170	2.219
Second Quarter.....	69,215,000	10	65,688,666.50	94.91	67,614,234.00	97.69	1,925,567.50	2.78	2.848	2.931
Third Quarter.....	206,668,000	33	201,327,916.00	97.42	205,178,230.80	99.28	3,850,314.80	1.86	1.877	1.912
Fourth Quarter.....	31,108,000	8	30,292,781.50	97.38	30,707,599.80	98.71	414,818.30	1.33	1.351	1.369
The Year 1925.....										
First Quarter.....	71,490,000	6	69,773,334.00	97.60	71,234,650.00	99.64	1,461,316.00	2.04	2.051	2.094
Second Quarter.....	49,710,000	9	48,424,744.50	97.41	49,375,553.50	99.33	950,790.00	1.92	1.926	1.963
Third Quarter.....	54,360,000	10	52,377,056.00	97.20	53,860,446.50	99.08	1,023,390.50	1.88	1.900	1.937
Fourth Quarter.....										
The Year 1926.....										
First Quarter.....	110,216,000	24	107,296,762.60	97.35	109,222,497.10	99.10	1,925,734.50	1.75	1.763	1.795
Second Quarter.....	30,386,000	9	29,800,617.50	98.07	30,306,897.50	99.74	506,280.00	1.67	1.671	1.699
Third Quarter.....	37,674,000	8	36,680,412.50	97.36	37,369,298.00	99.19	688,885.50	1.83	1.843	1.878
Fourth Quarter.....	25,161,000	3	24,390,788.10	96.94	24,819,765.60	98.64	428,977.50	1.70	1.728	1.759
The Year 1926.....										
First Quarter.....	16,995,000	4	16,424,944.50	96.65	16,726,536.00	98.42	301,591.50	1.77	1.803	1.836
Second Quarter.....										
Third Quarter.....										
Fourth Quarter.....										
The Year 1926.....										
First Quarter.....	29,205,000	6	28,284,835.50	96.85	28,763,961.00	98.49	479,125.50	1.64	1.666	1.694
Second Quarter.....	47,467,000	6	46,218,218.60	97.37	46,919,871.00	98.85	701,652.40	1.48	1.495	1.518

* Beginning with May, 1920, the date of the first applications under the Exch-Cummins Act.
† All issues over \$100,000 par value, for which both the price to the company and to the investor were available, were used.

TABLE IV. COMPARISON OF PRICE TO COMPANY AND COST TO INVESTOR AT OFFERING PRICE OF MISCELLANEOUS* SECURITIES ISSUED BY STEAM RAILWAYS, 1920†-1926

YEAR AND QUARTER	(M) PAR VALUE SOLD‡	NO. OF ISSUES	PRICE RECEIVED BY COMPANY		VALUE AT OFFERING PRICE		DIFFERENCE IN PRICE TO COMPANY AND INVESTOR			
			(N) Total—Dollars	(O) Per Hundred	(X) Total—Dollars	(Y) Per Hundred	(Z) Total—Dollars	(V—O)	(Z) (X)	(Z) (N)
The Year 1920†										
First Quarter										
Second Quarter										
Third Quarter										
Fourth Quarter										
The Year 1921										
First Quarter	\$ 2,000,000	1	1,875,200.00	93.76	1,928,800.00	96.44	53,600.00	2.68	2.779	2.858
Second Quarter										
Third Quarter	2,000,000	1	1,875,200.00	93.76	1,928,800.00	96.44	53,600.00	2.68	2.779	2.858
Fourth Quarter										
The Year 1922										
First Quarter										
Second Quarter										
Third Quarter										
Fourth Quarter										
The Year 1923										
First Quarter	19,600,000	4	19,163,000.00	97.77	19,459,000.00	99.28	296,000.00	1.51	1.521	1.545
Second Quarter	1,000,000	1	1,000,000.00	100.00	1,000,000.00	100.00				
Third Quarter	8,600,000	2	8,413,000.00	97.83	8,534,000.00	99.23	121,000.00	1.40	1.418	1.438
Fourth Quarter										
The Year 1924										
First Quarter	10,000,000	1	9,750,000.00	97.50	9,925,000.00	99.25	175,000.00	1.75	1.763	1.795
Second Quarter										
Third Quarter										
Fourth Quarter										
The Year 1925										
First Quarter	48,350,000	9	47,307,500.00	97.84	48,131,695.00	99.55	824,195.00	1.71	1.712	1.742
Second Quarter	6,000,000	1	5,820,000.00	97.00	5,955,000.00	99.25	135,000.00	2.25	2.267	2.319
Third Quarter	7,800,000	2	7,651,500.00	98.10	7,789,320.00	99.86	137,820.00	1.76	1.769	1.801
Fourth Quarter	34,150,000	5	33,450,000.00	97.95	33,993,375.00	99.54	543,375.00	1.59	1.598	1.624
The Year 1926										
First Quarter	1,000,000	1	942,500.00	94.25	990,000.00	99.00	47,500.00	4.75	4.797	5.040
Second Quarter										
Third Quarter	1,000,000	1	942,500.00	94.25	990,000.00	99.00	47,500.00	4.75	4.797	5.040
Fourth Quarter										
The Year 1926										
First Quarter	6,000,000	1	5,899,200.00	98.32	5,959,200.00	99.32	60,000.00	1.00	1.007	1.017
Second Quarter										

* Interest-bearing obligations other than bonds and equipment trust certificates, principally notes, debentures, and receivers' certificates.

† Beginning with May, 1920, the date of the first applications under the Eech-Cummings Act.

‡ All issues over \$100,000 per value, for which both the price to the company and to the investor were available, were used.

1920 had to be sold to yield the investor an average of almost 7%, and it appeared to make little difference what class of security was issued. The average yield per dollar of all securities issued was lower than the average yield per issue in every year *except* 1919, 1921, and 1925, although in the last-mentioned year the figures are substantially the same. In periods when interest rates were not changing rapidly, one finds very little difference between the average yields per dollar and per issue. The average yield per dollar and per issue by years for all issues may be conveniently summarized here.

Year	Yield per Dollar	Yield per Issue
1919	6.10%	5.91%
1920	6.93	6.94
1921	6.42	6.05
1922	5.58	5.63
1923	5.37	5.51
1924	5.18	5.24
1925	5.25	5.24

During the first three quarters of 1926, average yields have fallen from the comparatively stable level of 1924 and 1925 to 5.11%, 4.69%, and 5.08% per dollar, and 5.12%, 4.85%, and 5.18% per issue.

Cost of Hiring Capital

If we turn now to the other main element in cost of money, namely, the cost of hiring as measured by the difference between the price received by the company and the price paid by the investor, the necessary data can be gathered from the returns of the railroad companies to the Interstate Commerce Commission. Under authority of the Act of 1920, the Interstate Commerce Commission requires from the company a return showing the amount of securities sold and the price or value of goods or services received. These returns on file in the

Interstate Commerce Commission are the basis for the remainder of this study.

In order to determine the amount of the differential between the price to the company and the price to the investor, all issues for cash not privately placed and in excess of \$100,000 have been studied and arranged according to the character of security issued. Such a comparison of price to the company with price to the investor for railway bonds issued in the period from 1920 to 1926 is given in Table II, for equipment trust certificates in Table III, and for miscellaneous securities in Table IV.

Ways of Measuring the Cost of Hiring Capital

Before proceeding further, it is necessary to consider briefly the various ways in which the cost of hiring capital can be expressed. Referring to Table II, there is listed in column (*M*) the par value of securities sold, in column (*N*) the price in dollars received by the company from the bankers. The ratio of the price received to par value is set forth in column (*O*) as points or dollars per \$100 of par value received. In column (*X*) is recorded the value at offering price to the investor in dollars, and in column (*Y*) the points or dollars per \$100 of par value paid by the investor.

1. The crudest and most elementary way of expressing the fact that a discount on securities has been taken is to compare the price received by the company with the par value. Thus, the sale of a security with par value of 100 at 92 was at a discount of 8 points on the hundred. This is such an obvious confusion of postponed discount and cost of financing that it can be dismissed without further consideration.

2. Equally confusing and meaningless is the calculation of the ratio $(\frac{Z}{M})$ of the dollars difference between price to company and to investor and the par value or the points difference between the price per hundred dollars received by the company and par (100).

The information in Table II constitutes the necessary basis for calculating the cost of financing in three other ways.

3. By subtracting the average price per \$100 received by the company (O) from the average price per hundred paid by the investor (Y), we find the average dollars per hundred difference ($Y-O$) received by the bankers in compensation for their services. This is a method of expressing the cost of financing that does not involve the error of including possible elements of postponed interest. However, the significant limitation of this method of measurement is that it gives no weight to the amount of capital actually secured by the company. Thus, the cost of financing would appear the same whether a bond was sold for 93 and brought the company 90 or was sold for 78 and brought the company 75; yet the cost of getting a million dollars in the second instance would be materially higher. The average difference between the price per \$100 received by the company and the price per \$100 paid by the investor on bonds issued by railway companies during the period under review was 3.37. The same figure for equipment trust certificates was 2.15, and for miscellaneous securities, 1.66.

4. The next thought in the search for a satisfactory method of expressing the cost of financing is that, if par value of securities sold is unsatisfactory, the actual value at offering price would seem to be a satisfactory substitute. Thus we may express the cost of financing as the percentage relationship of the

amount of difference between dollars received by the company and paid by the investor and the value at offering price. Thus $(\frac{Z}{X})$ is the ratio of the banker's share to the value of the issue or issues at the price at which the investor absorbed them. Thus, for the period under review, steam railway bonds were sold by bankers at a cost (Z) which, on the average for all available issues, represented 3.472% of the price paid by the investor. A similar figure for equipment trust certificates is 2.171%, and for miscellaneous securities, 1.676%. This method of expression might be acceptable from the standpoint of the investor as showing the relationship of cost of marketing capital to his outlay, but it can hardly be considered representative of the significance of the cost of financing to the issuing company.

5. A fifth method of measurement is suggested by the criticism just made of using $(\frac{Z}{X})$. Since it is the cost to the company with which we are concerned, is not the value of securities at the price received by the company the proper base to which to relate the banker's compensation? This seems to meet the objections which have been lodged against any of the previously suggested methods. Thus $(\frac{Z}{N})$ is the percentage relationship of the difference in price to company and to investor in dollars to the actual dollars received by the company for its securities. This ratio $(\frac{Z}{N})$ was found to be 3.597 for bonds issued in the period 1920-1926. The same figure for equipment trust certificates is again lower, being 2.219 for the period. The figure for miscellaneous securities was 1.704.

The detailed changes quarter by quarter and year by year for bonds, equipment trust certificates, and miscellaneous securities are presented in

Tables II, III and IV. Without entering upon a detailed analysis of each, it may be pointed out that with some irregularities the trend has been decidedly downward since 1920, and that this is in accord with what might have been expected when changing from a period of high and fluctuating interest rates, as during 1919, 1920, and 1921, to the lower levels of 1923, 1924, and 1925.

At this juncture, and before proceeding to the study of further methods of measuring the cost of financing, some attention should be given to the lack of significance of particular percentage representations of the differential re-

ceived by the banker. The existence of a differential between the price to the company and the price to the investor is not evidence that the investment banker made any profit nor indeed is it evidence that he did not even lose on the transaction, or that this particular issue paid its share of the expenses of all issues handled by that banker during a given period. The range of these various expressions of the cost of financing with respect to bond issues during 1925 is set forth in Table V. The difference between the price per hundred to the company and the investor ($Y-O$) ranged from 1.67 to 7.00. The aver-

TABLE V. COMPARISON OF PRICE TO COMPANY AND PRICE TO INVESTOR OF STEAM RAILWAY BONDS ISSUED DURING THE YEAR 1925*

(Arrayed according to per cent yield at price received by company)

TOTAL PAR VALUE	YEARS TO MATURITY	PER CENT YIELD AT PRICE RECEIVED BY COMPANY	DIFFERENCE IN PRICE TO COMPANY AND TO INVESTOR			
			Per Hundred	$\frac{Z}{X}$	$\frac{Z}{N}$	Per Cent Yield
\$ 6,425,500	29½	4.73	2.50	2.747	2.825	.18
16,908,000	34½	4.96	2.25	2.601	2.671	.16
6,000,000	19	4.98	1.75	1.950	1.989	.17
7,094,000	37½	5.15	2.50	2.500	2.564	.15
5,598,000	20	5.16	2.50	2.488	2.551	.20
26,000,000	50	5.23	3.00	3.030	3.125	.17
8,136,000	13	5.23	1.67	1.678	1.707	.18
7,500,000	36¾	5.27	2.50	2.551	2.618	.15
40,000,000	35	5.31	3.00	3.061	3.158	.18
45,000,000	25	5.37	3.00	3.061	3.158	.23
250,000	35¾	5.43	3.25	3.662	3.801	.23
1,500,000	28¾	5.45	2.50	2.604	2.674	.18
15,000,000	49½	5.49	3.00	3.166	3.270	.19
1,700,000	36½	5.58	5.75	5.943	6.319	.38
100,000	36½	5.58	5.75	5.943	6.319	.38
3,752,000	29	5.71	2.50	2.513	2.577	.18
981,000	29	5.71	2.25	2.439	2.500	.18
9,575,000	49½	5.74	3.00	3.030	3.125	.19
4,000,000	25½	5.75	3.00	3.008	3.101	.23
16,092,000	37½	5.92	3.25	3.351	3.467	.22
12,500,000	50	5.94	3.00	3.125	3.226	.19
434,000	27½	6.01	4.00	4.469	4.678	.26
3,000,000	25	6.10	3.00	3.371	3.488	.25
25,000,000	30	6.24	3.00	3.008	3.101	.22
10,000,000	19¾	6.71	2.50	2.639	2.710	.24
25,000,000	10	6.77	4.00	4.061	4.233	.57
750,000	20	6.93	7.00	7.216	7.778	.68

* An issue of \$23,000,000 reported during the second quarter has been omitted. The issue was sold direct to the customers and no cost of financing was reported. An issue of \$100,000 reported during the fourth quarter is also omitted since no maturity and no yield to company are reported. All issues during the year 1925, for which all the information necessary was available, were used here.

† Z represents the difference in price to company and to investor, expressed in dollars. X represents the total value at offering price, expressed in dollars.

‡ Z represents the difference in price to company and to investor, expressed in dollars. N represents the total price received by company, expressed in dollars.

age for this year was 2.95 (see Table II). The ratio of the difference between price to company and investor, to the value at offering price ($\frac{Z}{X}$) ranged from 1.678 to 7.216, with an average of 3.044 for the same period, and the ratio ($\frac{Z}{N}$) of difference in price to investor and company to price received by the company ranged from 1.707 to 7.778, with an average for the year of 3.140. Study of the facts presented in

Table V will show some degree of correlation between the yield, at price received by company, and the amount of financing cost expressed in the various ways. Numerous exceptions are evident, and it is recognized that the size of the issue is an affecting factor. Reference to the left-hand column of Table V will bear this out. There are, of course, other factors affecting the risk and expense of marketing such securi-

TABLE VI. AVERAGE YIELD AT PRICE TO COMPANY COMPARED WITH AVERAGE YIELD AT OFFERING PRICE OF STEAM RAILWAY BOND ISSUES, 1920*-1926

YEAR AND QUARTER	PAR VALUE INVOLVED†	NUMBER OF ISSUES	PER CENT YIELD AT PRICE TO COMPANY		PER CENT YIELD AT PRICE TO INVESTOR		DIFFERENCE IN YIELD	
			Per Issue	Per Dollar	Per Issue	Per Dollar	Per Issue	Per Dollar
The Year 1920*	\$ 25,000,000	1	7.50	7.50	7.00	7.00	.50	.50
Third Quarter	25,000,000	1	7.50	7.50	7.00	7.00	.50	.50
Fourth Quarter								
The Year 1921	342,229,000	11	6.63	7.25	6.34	6.75	.29	.50
First Quarter	75,000,000	2	7.00	7.00	6.58	6.58	.32	.32
Second Quarter	8,000,000	2	6.34	6.51	6.07	6.30	.27	.21
Third Quarter	248,000,000	3	7.18	7.42	6.74	6.86	.44	.56
Fourth Quarter	11,229,000	4	6.18	5.85	6.05	5.62	.13	.23
The Year 1922	304,782,800	28	6.13	5.94	5.87	5.68	.26	.26
First Quarter	132,157,000	10	6.00	6.07	5.76	5.81	.24	.26
Second Quarter	110,474,000	8	6.27	5.84	6.02	5.58	.25	.26
Third Quarter	34,955,300	4	6.30	5.53	6.14	5.33	.16	.20
Fourth Quarter	27,196,500	6	6.04	6.26	5.66	5.85	.38	.41
The Year 1923	156,051,000	21	5.85	5.53	5.69	5.37	.16	.16
First Quarter	25,959,000	7	5.81	5.44	5.77	5.33	.04	.11
Second Quarter	23,447,000	2	5.00	5.04	4.87	4.90	.13	.14
Third Quarter	19,095,000	4	6.35	5.41	6.07	5.26	.28	.15
Fourth Quarter	87,550,000	8	5.86	5.71	5.64	5.53	.22	.18
The Year 1924	431,252,000	41	5.69	5.61	5.44	5.38	.25	.23
First Quarter	71,800,000	10	5.65	5.74	5.39	5.46	.26	.28
Second Quarter	150,649,000	14	5.99	5.99	5.67	5.72	.32	.27
Third Quarter	119,800,000	8	5.40	5.27	5.19	5.06	.21	.21
Fourth Quarter	89,003,000	9	5.51	5.34	5.33	5.16	.18	.18
The Year 1925	299,095,500	28	5.66	5.62	5.43	5.39	.23	.23
First Quarter	37,692,000	5	5.70	5.79	5.46	5.58	.24	.21
Second Quarter	136,502,500	12	5.66	5.51	5.43	5.31	.23	.20
Third Quarter	72,544,000	4	5.19	5.25	5.02	5.04	.17	.18
Fourth Quarter	52,357,000	7	5.90	6.35	5.63	5.96	.27	.39
The Year 1926								
First Quarter	49,489,000	7	5.65	5.48	5.38	5.28	.27	.20
Second Quarter	44,672,000	7	5.41	5.00	5.26	4.86	.15	.14

* Beginning with May, 1920, the date of first applications under the Esch-Cummins Act.

† Only those issues for which both the cost to the company and yield to the investor were ascertainable could be used for this comparison. This represents 88.5% of the total par value of all authorizations of \$100,000 or over, or 145 issues out of a total of 317.

ties and many of these, no doubt, could be shown to account for the cases of wide variation. Recognition will be given some of these other factors influencing the cost of financing in the latter portion of this study.

That the underwriting and distributing of steam railway securities did not take place without loss to those engaged in the banking business is evidenced by the records showing cases where the price to the investor was

equal to or below the price received by the company. These instances obviously would have so distorted results that they were omitted from the averages. Six cases were recorded in which equipment trust certificates were sold to investors at less than the price received by the company. Two of these were in 1921, a year of violent interest changes, two in the year 1922, and one each in the years 1924 and 1925. The total nominal loss to the bankers for the is-

TABLE VII. AVERAGE YIELD AT PRICE TO COMPANY COMPARED WITH AVERAGE YIELD AT OFFERING PRICE OF STEAM RAILWAY EQUIPMENT TRUST CERTIFICATES, 1920*-1926

YEAR AND QUARTER	PAR VALUE INVOLVED†	NUMBER OF ISSUES	PER CENT YIELD AT PRICE TO COMPANY		PER CENT YIELD AT PRICE TO INVESTOR		DIFFERENCE IN YIELD	
			Per Issue	Per Dollar	Per Issue	Per Dollar	Per Issue	Per Dollar
The Year 1920*	\$ 15,007,000	3	7.25	7.30	6.76	6.74	.49	.56
Third Quarter.....								
Fourth Quarter.....	15,007,000	3	7.25	7.30	6.76	6.74	.49	.56
The Year 1921.....	32,265,600	11	6.79	6.74	6.69	6.66	.10	.08
First Quarter.....	21,081,000	5	6.78	6.92	6.67	6.61	.11	.31
Second Quarter.....	10,884,600	5	6.56	6.36	6.65	6.75	+.09	+.39
Third Quarter.....	300,000	1	8.00	8.00	7.00	7.00	1.00	1.00
Fourth Quarter.....								
The Year 1922.....	97,909,000	22	5.73	5.67	5.39	5.33	.34	.34
First Quarter.....	600,000	1	7.01	7.01	6.60	6.60	.41	.41
Second Quarter.....	17,685,000	3	5.86	5.87	5.46	5.50	.40	.37
Third Quarter.....	55,040,000	8	5.62	5.64	5.32	5.31	.30	.33
Fourth Quarter.....	24,584,000	10	5.66	5.57	5.30	5.22	.36	.35
The Year 1923.....	273,198,000	44	5.84	5.74	5.43	5.34	.41	.40
First Quarter.....	44,995,000	8	5.38	5.33	5.09	5.05	.29	.28
Second Quarter.....	133,173,000	19	5.84	5.75	5.46	5.38	.38	.37
Third Quarter.....	25,815,000	7	5.81	5.75	5.42	5.36	.39	.39
Fourth Quarter.....	69,215,000	10	6.24	5.97	5.63	5.50	.61	.47
The Year 1924.....	207,346,000	34	5.47	5.27	5.02	4.94	.45	.33
First Quarter.....	31,108,000	8	5.77	5.42	5.34	5.12	.43	.30
Second Quarter.....	71,490,000	6	5.93	5.42	5.23	5.07	.70	.35
Third Quarter.....	49,710,000	9	5.30	5.17	4.90	4.84	.40	.33
Fourth Quarter.....	55,038,000	11	5.15	5.09	4.78	4.75	.37	.34
The Year 1925.....	110,305,000	25	5.16	5.11	4.86	4.80	.30	.31
First Quarter.....	30,475,000	10	5.19	5.19	4.91	4.86	.28	.33
Second Quarter.....	37,674,000	8	5.03	5.03	4.66	4.71	.37	.32
Third Quarter.....	25,161,000	3	5.15	5.16	4.88	4.89	.27	.27
Fourth Quarter.....	16,995,000	4	5.38	5.09	5.00	4.80	.38	.29
The Year 1926.....								
First Quarter.....	29,205,000	6	5.02	5.01	4.72	4.73	.30	.28
Second Quarter.....	47,467,000	6	4.92	4.91	4.69	4.67	.23	.24

* Beginning with May, 1920, the date of the first applications under the Esch-Cummins Act.

† Only those issues for which both the cost to the company and yield to the investor were ascertainable could be used for this comparison. This represents 86.7% of the total par value of all authorizations of \$100,000 or more, and 151 out of a total of 222 such issues.

sues was \$388,964.60, but obviously their real loss was more than this by the expenses they incurred. Similarly, 8 issues of bonds were offered to investors at a price equal to or below the price received by the company, but with a nominal loss of only \$19,250. One of these cases occurred in 1921, two in 1922, two in 1923, one in 1924, and two in 1925. The total par value of trust certificates and bonds involved in

cases of this character was \$39,210,000. It may then properly be pointed out again that the difference between the price to company and to investor may be equal to, more than, or less than the expenses of the banker, and that the existence of a differential in favor of the banker does not assure a gain, or an even break. Over a period the gains and losses must balance out to give a fair profit, and, therefore, the average

TABLE VIII. AVERAGE YIELD AT PRICE TO COMPANY COMPARED WITH AVERAGE YIELD AT OFFERING PRICE OF MISCELLANEOUS SECURITY ISSUES OF STEAM RAILWAYS, 1920*-1926

YEAR AND QUARTER	PAR VALUE INVOLVED†	NUMBER OF ISSUES	PER CENT YIELD AT PRICE TO COMPANY		PER CENT YIELD AT PRICE TO INVESTOR		DIFFERENCE IN YIELD	
			Per Issue	Per Dollar	Per Issue	Per Dollar	Per Issue	Per Dollar
The Year 1920*								
Third Quarter.....								
Fourth Quarter.....								
The Year 1921.....	\$ 2,000,000	1	7.39	7.39	7.00	7.00	.39	.39
First Quarter.....								
Second Quarter.....	2,000,000	1	7.39	7.39	7.00	7.00	.39	.39
Third Quarter.....								
Fourth Quarter.....								
The Year 1922.....								
First Quarter.....								
Second Quarter.....								
Third Quarter.....								
Fourth Quarter.....								
The Year 1923.....	19,600,000	4	6.32	6.44	5.72	5.77	.60	.67
First Quarter.....	1,000,000	1	6.00	6.00	6.00	6.00		
Second Quarter.....	8,600,000	2	6.41	6.49	5.57	5.76	.84	.73
Third Quarter.....								
Fourth Quarter.....	10,000,000	1	6.43	6.43	5.75	5.75	.68	.68
The Year 1924.....	48,350,000	9	6.26	6.12	5.29	5.26	.97	.86
First Quarter.....	6,000,000	1	6.63	6.63	5.40	5.40	1.23	1.23
Second Quarter.....	7,800,000	2	6.61	6.77	5.43	5.52	1.18	1.25
Third Quarter.....	34,150,000	5	5.92	5.87	5.11	5.17	.81	.70
Fourth Quarter.....	400,000	1	6.91	6.91	5.80	5.80	1.11	1.11
The Year 1925.....	1,000,000	1	7.40	7.40	6.20	6.20	1.20	1.20
First Quarter.....								
Second Quarter.....								
Third Quarter.....	1,000,000	1	7.40	7.40	6.20	6.20	1.20	1.20
Fourth Quarter.....								
The Year 1926.....								
First Quarter.....								
Second Quarter.....	6,000,000	1	5.40	5.40	4.86	4.86	.54	.54

* Beginning with May, 1920, the date of the first applications under the Esch-Cummins Act.

† Only those issues for which both the cost to the company and yield to the investor were ascertainable could be used for this comparison. This represents 53.48% of the total par value of all miscellaneous authorizations of \$100,000 or more, or only 16 out of 117 issues of miscellaneous securities.

differentials for this period may be assumed to be fairly representative. For the period as a whole, the cases mentioned will not materially affect the averages, but inclusion in the figures for quarter years would distort the results.

What the significance of the cost of financing is in the total cost of capital depends finally also upon the frequency of refinancing or, in other words, upon the length of time for which capital is

hired. The intrusion of the time factor into the problem in one way very much complicates the process and yet, through the equalization of discount on account of a low certificate rate of interest and equalization of maturity, some of the difficulties of every other method of expressing the cost of financing are overcome. To include this time factor another method of measuring cost of capital is suggested.

TABLE IX. AVERAGE YIELD AT PRICE TO COMPANY OF ALL STEAM RAILWAY SECURITY ISSUES, 1920*-1926

YEAR AND QUARTER	PAR VALUE INVOLVED†	NUMBER OF ISSUES	PER CENT YIELD AT PRICE TO COMPANY	
			Per Issue	Per Dollar
The Year 1920*.....	\$ 54,543,000	14	7.02	7.29
First Quarter.....	29,631,000	3	6.50	7.27
Fourth Quarter.....	24,912,000	11	7.16	7.31
The Year 1921.....	418,494,009	60	6.83	7.21
First Quarter.....	106,107,509	26	6.84	6.96
Second Quarter.....	26,968,500	14	6.78	6.44
Third Quarter.....	270,191,000	12	7.22	7.46
Fourth Quarter.....	15,227,000	8	6.27	5.90
The Year 1922.....	438,895,604	88	6.02	5.86
First Quarter.....	146,149,800	23	6.11	6.03
Second Quarter.....	134,999,000	18	6.16	5.86
Third Quarter.....	104,491,304	26	5.99	5.58
Fourth Quarter.....	53,255,500	21	5.84	5.93
The Year 1923.....	541,815,631	109	5.90	5.61
First Quarter.....	76,429,000	22	5.58	5.39
Second Quarter.....	233,142,996	32	5.79	5.51
Third Quarter.....	59,453,424	22	5.99	5.56
Fourth Quarter.....	172,790,211	33	6.14	5.87
The Year 1924.....	720,895,793	135	5.80	5.54
First Quarter.....	111,018,039	31	6.03	5.70
Second Quarter.....	241,631,254	37	6.01	5.82
Third Quarter.....	218,176,000	35	5.51	5.59
Fourth Quarter.....	150,070,500	32	5.63	5.27
The Year 1925.....	520,087,740	156	5.52	5.45
First Quarter.....	80,272,700	38	5.66	5.43
Second Quarter.....	222,707,500	44	5.61	5.49
Third Quarter.....	127,501,219	37	5.46	5.11
Fourth Quarter.....	89,606,321	37	5.34	5.82
The Year 1926.....				
First Quarter.....	112,671,500	36	5.54	5.31
Second Quarter.....	135,376,950	47	5.35	5.01

* Beginning with May, 1920, the date of the first applications under the Esch-Cummins Act.

† Includes all bond, equipment trust, and miscellaneous security issues on which yield at cost to company was available. Eight issues out of the total number are not recorded here because such information was not available. Three bond issues are not recorded because an exchange of securities took place.

*Interest Yield to Maturity as Method
of Measuring Cost of Capital*

6. In this final method of measuring and expressing the cost of financing, the procedure is to compute the interest yield per dollar to maturity at the price received by the company and again in the same manner at the price paid by the investor. Thus, the average interest yield for all bond issues during the year 1922 at the price to the company was 5.94% per dollar and 6.13% per

issue. The average interest yield at price to the investor for this same year was per issue 5.87% and per dollar 5.68%. Subtracting the yield to maturity at the price to the company from the yield to maturity at price to investor, we find the difference to be .26% per issue and the same on the per dollar basis in this year (1922).

By this method of measurement, the average cost of financing by bonds for the period since the passage of the Transportation Act was .23% per issue

TABLE X. AVERAGE YIELD AT PRICE TO COMPANY ON NEW STEAM RAILWAY BOND ISSUES, 1920*-1926

Year and Quarter	Par Value Sold†	Average Yield per Dollar at Price to Company	Number of Issues
The Year 1920*	\$ 35,719,500	7.34	5
First Quarter	28,631,000	7.31	2
Fourth Quarter	17,088,500	7.47	3
The Year 1921	350,944,400	7.23	30
First Quarter	78,173,500	6.97	10
Second Quarter	12,398,900	6.42	6
Third Quarter	248,645,000	7.41	7
Fourth Quarter	11,727,000	5.88	7
The Year 1922	317,582,600	5.92	49
First Quarter	134,736,800	6.05	18
Second Quarter	113,463,000	5.84	11
Third Quarter	42,076,300	5.49	12
Fourth Quarter	27,306,500	6.26	8
The Year 1923	223,895,300	5.38	38
First Quarter	28,656,000	5.42	10
Second Quarter	83,230,000	5.01	5
Third Quarter	22,213,500	5.40	10
Fourth Quarter	89,795,800	5.69	13
The Year 1924	447,084,800	5.61	70
First Quarter	73,640,300	5.74	17
Second Quarter	155,785,000	5.96	20
Third Quarter	124,777,000	5.26	17
Fourth Quarter	92,882,500	5.37	16
The Year 1925	333,621,845	5.60	83
First Quarter	39,431,700	5.81	22
Second Quarter	155,188,500	5.52	27
Third Quarter	82,164,400	5.19	15
Fourth Quarter	56,837,245	6.27	19
The Year 1926			
First Quarter	71,989,000	5.45	17
Second Quarter	62,942,300	5.05	16

* Beginning with May, 1920, the date of the first applications under the Esch-Cummins Act.

† Eight issues out of the total number are not included here because no record of price received by company was available in the case of five such issues, while in three cases an exchange of securities took place.

and .28% per dollar. Thus .28% per dollar per year is the cost of hiring the average dollar in the years 1920 to 1926 through issuance of bonds.

Using this method in the case of the issuance of equipment trust certificates, we find the cost of hiring for the period to be .37% per issue and .33% per dollar per year. The results of the application of all the other methods of measuring the cost of financing showed that the cost for equipment trust certificates was lower than for bonds. If the cost is expressed as so much more interest over

the period to maturity, which period is on the average a shorter time for the trust certificates than for the bonds, the cost of hiring capital on that basis is .05% per year higher than on bonds. Miscellaneous securities, which always held the lowest position when any other method was applied, now are the highest because of the corrective effect of taking into account the period for which capital is hired. The cost for miscellaneous securities was .83% per issue and .78% per dollar.

The variation in the cost of hiring

TABLE XI. AVERAGE YIELD AT PRICE TO COMPANY ON NEW STEAM RAILWAY EQUIPMENT TRUST CERTIFICATE ISSUES, 1920*-1926

Year and Quarter	Par Value Sold†	Average Yield per Dollar at Price to Company	Number of Issues
The Year 1920*	\$ 15,777,000	7.28	4
Third Quarter			
Fourth Quarter	15,777,000	7.28	4
The Year 1921	40,741,600	6.76	17
First Quarter	27,131,000	6.94	8
Second Quarter	12,564,600	6.31	6
Third Quarter	1,046,000	7.35	3
Fourth Quarter			
The Year 1922	121,236,000	5.71	37
First Quarter	11,413,000	5.83	5
Second Quarter	21,536,000	5.99	7
Third Quarter	62,338,000	5.64	12
Fourth Quarter	25,949,000	5.58	13
The Year 1923	295,718,000	5.72	57
First Quarter	46,748,000	5.34	10
Second Quarter	140,260,000	5.74	22
Third Quarter	37,235,000	5.65	11
Fourth Quarter	71,475,000	6.00	14
The Year 1924	223,095,000	5.27	38
First Quarter	31,108,000	5.42	8
Second Quarter	77,735,000	5.42	9
Third Quarter	59,214,000	5.18	10
Fourth Quarter	55,038,000	5.09	11
The Year 1925	145,867,076	5.04	46
First Quarter	40,818,000	5.07	14
Second Quarter	40,269,000	5.03	10
Third Quarter	32,561,000	5.03	7
Fourth Quarter	32,219,076	5.01	15
The Year 1926			
First Quarter	33,300,000	5.02	11
Second Quarter	61,369,000	4.91	10

* Beginning with May, 1920, the date of the first applications under the Esch-Cummins Act.

† Two issues out of the total number are not included here because no records of price received by company were available.

capital by issuance of bonds when expressed as interest cost per year per issue is also material. Thus, in the right-hand column of Table V there are recorded the differences in interest yield on all bond issues during the year 1925 for which the information was available. They range from .18% to .68%, with an average for the year of .23%.

The market selling price was not available for a considerable number of issues of all classes. Many smaller issues are privately placed; thus all the information that is available on these

issues is the price the company received and thus the yield at the price to the company, but not the yield at the price to the investor. Tables VI, VII, and VIII report the facts for the more limited number of issues for which both prices are available. In Tables IX, X, XI, and XII are presented the facts as to the average yield at the price to the company, namely, the total cost of capital in terms of interest per dollar (and per issue in Table IX) per year. Here, with the exception of 8 cases, all issues in excess of \$100,000 par value are used.

TABLE XII. AVERAGE YIELD AT PRICE TO COMPANY ON NEW MISCELLANEOUS SECURITY ISSUES OF STEAM RAILWAYS, 1920*-1926

Year and Quarter	Par Value Sold†	Average Yield per Dollar at Price to Company	Number of Issues
The Year 1920*	\$ 3,046,500	7.01	5
Third Quarter	1,000,000	6.00	1
Fourth Quarter	2,046,500	7.01	4
The Year 1921	26,808,009	7.64	13
First Quarter	803,009	6.33	8
Second Quarter	2,005,000	7.39	2
Third Quarter	20,500,000	8.00	2
Fourth Quarter	3,500,000	6.00	1
The Year 1922	77,004	6.00	2
First Quarter			
Second Quarter			
Third Quarter	77,004	6.00	2
Fourth Quarter			
The Year 1923	22,202,332	6.45	14
First Quarter	1,025,000	6.00	2
Second Quarter	9,652,997	6.43	5
Third Quarter	4,924	8.00	1
Fourth Quarter	11,519,411	6.42	6
The Year 1924	50,715,993	6.11	27
First Quarter	6,269,739	6.66	6
Second Quarter	8,111,254	6.79	8
Third Quarter	34,185,000	5.87	8
Fourth Quarter	2,150,000	5.67	5
The Year 1925	17,598,819	5.18	26
First Quarter	23,000	6.00	2
Second Quarter	4,250,000	6.14	6
Third Quarter	12,775,819	4.83	15
Fourth Quarter	550,000	5.82	3
The Year 1926			
First Quarter	7,382,500	5.20	8
Second Quarter	11,065,650	5.31	21

* Beginning with May, 1920, the date of the first applications under the Esch-Cummins Act.

† One issue out of the total number is not included here because no record of price received by company was available.

The results are similar to those secured with the limited sample, but slightly higher yields obtain on the average. The average total cost per dollar per year for all classes of securities was 5.82%; for bonds only, 5.87%; for equipment trust certificates, 5.50%; and for miscellaneous securities, 6.24%.

In Table XIII there is presented a summary of the more important ratios and percentage costs for the period as a whole by classes of securities.

Comparison of Cost of Capital with Earned Returns

In conclusion, and returning to the problem presented in the introduction to this study, we may compare the facts (Table XIV) of the cost of capital, as herein determined and set forth, with the rate at which capital has been compensated during the same period under the operation of the Transportation Act of 1920.

The annual reports of the Interstate Commerce Commission set forth the results in summary fashion. The return on investment for operating steam railways, excluding switching and terminal companies, for the years 1919 to 1926 is reported to be:

1919	2.35%
1920	.06
1921	2.96
1922	3.74
1923	4.56
1924	4.44
1925	5.01

If the true value of the railways proves to be anywhere near, if not exceeding, the investment figure of the companies, it would seem that the rate of return for the industry as a whole is below that necessarily paid as the total average price of new borrowed capital. Upon the stock of the same operating railways the net income represented, naturally, a somewhat higher rate. For the years 1919-1926 the ratio of net income to stock was:

1919	5.59%
1920	5.45
1921	3.94
1922	4.85
1923	6.95
1924	6.74
1925	8.20

In the 6-year period the average return on the average dollar of capital in the steam railway industry was 3.37%, and the average total cost of newly borrowed capital per dollar per year on all classes of new securities was 5.82%,

TABLE XIII. SUMMARY OF COST OF FINANCING EXPRESSED IN VARIOUS WAYS, BY YEARS AND FOR THE PERIOD 1920-1926*

YEAR	ALL CLASSES†				BONDS				EQUIPMENT TRUST CERTIFICATES				MISCELLANEOUS SECURITIES			
	(Y-O)	$\frac{Z}{X}$	$\frac{Z}{N}$	Yield Difference	(Y-O)	$\frac{Z}{X}$	$\frac{Z}{N}$	Yield Difference	(Y-O)	$\frac{Z}{X}$	$\frac{Z}{N}$	Yield Difference	(Y-O)	$\frac{Z}{X}$	$\frac{Z}{N}$	Yield Difference
1920.....	3.66	3.657	3.796	.52	3.47	3.470	3.594	.50	3.98	3.967	4.131	.56	.....	.....	.....	.....
1921.....	4.38	4.507	4.720	.47	4.54	4.680	4.910	.50	2.44	2.442	2.503	.08	2.68	2.779	2.858	.39
1922.....	3.24	3.339	3.455	.29	3.55	3.689	3.830	.26	2.20	2.231	2.282	.34	.....	.....	.....	.....
1923.....	2.54	2.591	2.660	.32	2.65	2.743	2.821	.16	2.55	2.583	2.652	.40	1.51	1.521	1.545	.67
1924.....	2.97	2.726	2.802	.30	3.16	3.258	3.368	.23	1.86	1.877	1.912	.33	1.71	1.712	1.742	.86
1925.....	2.61	2.680	2.754	.24	2.95	3.044	3.140	.23	1.75	1.763	1.795	.31	4.75	4.707	5.040	1.20
1926†.....	2.16	2.197	2.240	.21	2.74	2.802	2.883	.17	1.54	1.560	1.585	.25	1.00	1.007	1.017	.54
1920-1926...‡	2.96	3.028	3.123	.31	3.37	3.472	3.597	.28	2.15	2.171	2.219	.33	1.66	1.676	1.704	.78

* From May, 1920, to June, 1926.

† On the per dollar basis throughout.

‡ First six months only.

and on bonds, 5.87%. In these last two figures the cost of hiring capital accounted for .31% per dollar per year for all classes of new securities, and .28% per dollar per year for bonds.

The significance of such computations of the cost of different forms of financing becomes more apparent when the emphasis in rate regulation is shifted from the rate base to the rate of return. An essential factor in determining

the rates of return necessary to attract and hold capital in the industry is the relative cost of different ways of getting necessary capital. Such information is also needed if it is desired to establish differential rates of return as inducements to economy in financing. It is submitted that the method outlined above (conveniently called the "interest yield to maturity" method) will best serve the purposes of such investigations.

TABLE XIV. COMPARISON OF TOTAL COST OF CAPITAL WITH RATIO OF OPERATING INCOME TO INVESTMENT AND NET INCOME TO STOCK OF OPERATING STEAM RAILWAY COMPANIES

YEAR	COST OF CAPITAL SECURED BY ISSUANCE OF:*				RETURN EARNED†	
	All Securities	Bonds	Equip. Trust Certificates	Misc. Securities	On Investment	On Stock
1920.....	7.29	7.34	7.28	7.01	.06	5.45
1921.....	7.21	7.23	6.76	7.64	2.96	3.94
1922.....	5.86	5.92	5.71	6.00	3.74	4.85
1923.....	5.61	5.38	5.72	6.45	4.56	6.95
1924.....	5.54	5.61	5.27	6.11	4.44	6.74
1925.....	5.45	5.60	5.04	5.18	5.01	8.20
1926‡.....	5.15	5.27	4.95	5.27	.....	.....
1920-1926.....	5.82	5.87	5.50	6.24	3.37	5.99

* The broader base of all securities issued, whether price to investor is available or not, is and can be used here. The basis of this summary compares with that of Tables IX, X, XI, and XII.

† By all operating steam railways, excluding switching and terminal companies.

‡ First six months only.

THE DEVELOPMENT OF PUBLIC LAND POLICY IN AUSTRALIA

By WILLIAM H. WYNNE

IN the previous article¹ the history of Australian land policy was outlined down to 1884, the year which marked the repeal of the Free Selection Act. The disappointing results of the act, it was shown, were attributable, in the last analysis, less to wide-spread chicanery and lax administration than to climatic and economic causes; drought and the lack of markets or facilities for marketing were obstacles to the advance of closer settlement more formidable than the squatter, obstacles which land laws, however liberal, could do little to overcome. These conditions were present in all the colonies, but they were most severe in New South Wales, with the consequence that, while agriculture had made substantial progress in Victoria and South Australia, the mother colony still remained virtually one great sheep-run. In the past 40 years, though, the monopoly of wool has been broken; cultivation has been steadily advanced in New South Wales as well as in other states, and a diversity of rural industries promoted. Such progress is attributable largely to the fact that economic and scientific developments have enabled the farmer to extend his operations into drier regions, to cheapen and improve his methods of production, and to sell his produce in a world market. It is desirable to give a brief account of these developments, for they have determined in no small degree the character, as well as the re-

sults, of the land policies of the period.

Factors Influencing the Growth of Cultivation

The progress of cultivation since 1890 is shown in Table 1. Wheat is by far the principal crop. Of the total area under cultivation in 1922, 59.02% (9.76 million acres) was sown with wheat for grain, while of the remaining area a considerable portion was devoted to wheat which was cut green and used for fodder. The expansion of wheat farming has been most marked in New South Wales, where, between 1890 and 1922, the wheat (for grain) acreage increased from 333,000 to 2,942,000 acres, but West Australia also made rapid strides in wheat production, and some authorities believe that in time that state may wrest the leadership from its eastern rivals.

The extension of railways is one of the fundamental factors which has made possible the development of wheat-growing in the past and on which progress for the future is still largely dependent. In this respect, railway development has meant more to New South Wales than to Victoria and South Australia, for in the latter colonies the wheat areas lay close to the seaboard and were easily accessible from it, whereas in the older colony they were cut off from Sydney by the coastal range. Railway construction across this mountainous region involved great difficulties for the engineer and entailed a heavy bur-

¹ JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS, Vol. II, No. 4, October, 1926, p. 446.

den of expense upon a scantily peopled country. Consequently progress was slow, and it was not until 1876 that the railway reached Bathurst (145 miles from Sydney). Once the mountain barrier was crossed, however, it became possible to extend lines with much greater rapidity across the table-land and the fertile and gentle western slopes into the rich plains of Riverina, thus providing transport facilities for the chief wheat-growing areas in the state—indeed in the Commonwealth.

The westward advance of the wheat farmer is checked by the diminishing rainfall, but scientific methods of cultivation are enabling him steadily to encroach on semiarid country once thought useless except for grazing land. He has learned from America the practice of dry farming; he has hearkened to advisers who urged the adoption of improved crop rotations and the use of artificial manures—especially superphosphates; and he has been ready to use the labor-saving machinery which ingenious inventors have devised, and the drought and disease-resisting wheats which expert seed breeders have evolved. Wheat can now be grown profitably where the rainfall during the growing season is as low as 10 inches, and it is estimated that it will be possible ultimately to increase the wheat acreage in New South Wales to 8 times its present amount and to bring about at least a fivefold expansion in the Commonwealth as a whole.

The growth of the dairying industry was long retarded by the difficulties of manufacturing and handling perishable products in a warm climate. Refrigeration has solved the problem and turned the industry from one supplying merely local needs to one with an extensive export trade. Dairying is now an important pursuit in many irrigation districts, while many graziers whose holdings lie near towns in the interior are turning their attention to dairying, which they carry on in conjunction with agriculture and sheep-raising. The industry flourishes chiefly, however, in the moist, coastal districts, and in these areas refrigeration has done more to promote closer settlement than any land laws. Refrigeration has also proved a great boon to the orchardist, whom it has enabled to build up a large and remunerative export trade—especially in apples. It has also exercised a profound influence upon the pastoral industry, for it has enabled the Australian stockman to market meat, as well as wool and hides, abroad.

The extension of irrigation works is another factor which is contributing to the diversification of rural industries and making possible close, permanent settlement on the land. The possibilities of expansion are, however, by no means unlimited. About 36% of the continent lies beyond the 10-inch isohyetal, and over most of this area irrigation is impracticable, so that it is likely to remain forever unfit for any-

TABLE I. AREA UNDER CROP, 1890-1922*
(In thousands of acres)

Year	New South Wales	Victoria	Queensland	South Australia	West Australia	Tasmania	Total
1890	853	2,032	225	2,093	70	157	5,430
1922	4,694	4,863	835	3,575	2,275	299	16,544

* Commonwealth Year-Book, No. 17 (1924), p. 674.

thing except an attenuated pastoral occupation. In the southeast, where practically all the scanty rivers of the continent lie, there are, within the 10-inch line, vast tracts of semiarid land. But even of this only a small proportion can ever be brought within the range of irrigation; the greater part can be slowly reclaimed only through the practice and improvement of dry-farming methods. Nevertheless, the territory which is practicably irrigable and which, in consequence, may be made to support eventually a closely settled rural population engaged in market gardening, fruit-growing, mixed or dairy farming, comprises several million acres. But irrigation is costly, and, with the burden of public debt already heavy, it must of necessity proceed slowly.

As he has moved into the interior, the pastoralist, as well as the agriculturist, has had to face the problem of supplementing the scanty and capricious rainfall. In regions where there is little surface water, dams and tanks have been constructed on every run, while the government has made similar provision for water conservation along the stock-traveling routes. But evaporation is rapid, and these reserves are likely to give out just when they are most needed. Over large areas, however, the position of the pastoralist has been made more secure through the discovery and tapping of vast supplies of artesian water. The great artesian basin, the largest in the continent, embraces an area of 600,000 square miles, of which 376,000 are in Queensland, covering more than half the total area of that state, 118,000 in South Australia, and 80,000 in New South Wales.² In addition, artesian basins have been discovered in the Murray River region, extending over portions of the aforementioned states, and also in West

Australia. Watering by artesian bores has greatly increased the carrying capacity of large areas and "has made comparatively small pastoral holdings practicable in country previously confined almost entirely to the operations of companies holding immense areas."³ In West Australia it has even made possible the extension of pastoral settlement into regions regarded formerly as merely a useless desert. It is doubtful whether it will ever be possible to utilize artesian water to any extent for irrigation, as the supply is not only insufficient for the purpose, but it is also alkaline—and therefore unsuitable—and the process of neutralization is far too costly to apply on a commercial scale.

Principles of Recent Land Legislation

While the scientist and the engineer have done much to make possible the profitable occupation and utilization of a wide extent of territory, the legislator has multiplied laws and regulations to promote the settlement on the land of a large and flourishing population. In most of the states the land acts have now, happily, been consolidated, but a consolidated land act is no slight brochure. That of New South Wales (1913), which repealed in whole or in part 36 statutes, comprises—apart from numerous supplementary regulations—342 clauses, and the Victorian act is only one-third shorter. There are today in New South Wales 26 ways, and in Victoria 14, in which Crown lands may be purchased or leased. Numerous as these tenures are, it is doubtful whether any one is really superfluous; they have

² The remaining 25,000 square miles are in the Northern Territory. *Commonwealth Year-Book*. No. 17, p. 867.

³ *Ibid.*, p. 869.

been evolved to check abuses, to provide for new needs, or to furnish added inducements to attract settlers.

The guiding aim of land reformers during the past 40 years has been to promote closer settlement in suitable areas and to avoid in the process needless injury to the pastoral industry. Before land is thrown open for settlement, it is now, as far as possible, surveyed and classified according to its situation, the climate of the district, the quality of the soil, and the purpose for which it is best fitted. This classification largely determines the form of tenure under which land may be held, the area of the holding, the price to be paid, and the conditions to be fulfilled by the settler. Such a classification, if it is to serve its purpose, must necessarily be flexible, for dry farming, irrigation, and the extension of railways are steadily making possible the profitable occupation of large areas of land once thought fit only for grazing.

Governments no longer attempt to wrest land from the monopolistic grasp of the squatter by the crude and inefficient weapon of indiscriminate free selection. The far more satisfactory method adopted under the New South Wales Land Act of 1884 (a method adopted to some extent in Queensland 16 years earlier) makes that statute a landmark in the agrarian history of Australia, and it is desirable to indicate the main features of the measure. Under the colony was divided by lines running north and south into three territorial divisions, denominated respectively the Eastern Division, the Central,

and the Western. The runholder was obliged to divide his holding into two portions, designating one a leasehold area and the other a resumed area. The former was re-leased to him, according as the run lay in the Eastern or in the Central Division, for a term of 5 or of 10 years; the latter alone was kept open for selection in maximum areas of 640⁴ and 2,560 acres in these respective divisions, the squatter being allowed to occupy it meanwhile on annual license.⁵

The Western Division is the region most subject to prolonged droughts, and there, the authors of the act realized, except where irrigation works were constructed, very little land was likely to be devoted to agricultural pursuits. The leasehold halves of runs in the division were therefore re-leased to squatters for 15 years, and in subsequent acts this term was extended, first to 21 years, then to 28 years, and finally (in 1901) to the year 1943. Although it was patently impossible to establish a farming population on the resumed areas, it was believed that a class of small graziers could be successfully settled; and to this end, in lieu of conditional purchases,⁶ homestead leases were offered (under the Act of 1884) in areas of 5,760 to 10,240 acres, for a term of 15 years. These leases, like the pastoral leases, were extended eventually to 1943.

The basic principles of the New South Wales Act are now embodied in the land legislation of all the states. All aim to avoid a conflict between pastoralist and selector by resuming parts of runs before throwing them open to

⁴ Raised subsequently to 1,280 acres.

⁵ This "rule of thumb" bisection of leaseholds was replaced in 1895 by a more flexible policy. Henceforth the squatter was to be allowed to retain his run under pastoral lease, and land was to be resumed from it only as it was required for settlement.

⁶ A conditional purchase is a form of tenure "in which the issue of the grant is made after the fulfilment of certain conditions as to residence or improvements, or both, in addition to the payment of the purchase-money, which is usually paid in instalments." *Commonwealth Year-Book*, No. 17, p. 153.

selection, and all grant the pastoral lessee a tenure of the remainder of his run secure enough to encourage him to improve it to the best of his capacity.

The position of the conditional purchaser in the various states has been affected since 1884 by a number of acts. By them a settler who found that his selection, although of the statutory maximum area, was too small to afford him a living has been enabled to obtain sufficient additional land to make up what is termed a "home maintenance area," this being defined as an area "which, when used for the purposes for which it is reasonably fitted, would be sufficient for the maintenance in average seasons and circumstances of an average family." For the rest, the main purpose of these measures has been to lighten the financial demands made upon the conditional purchaser by the state, but at the same time to require from him the erection of some permanent improvements and a lengthy period of residence, in order to insure, as far as possible, that he will benefit the community by making a reasonable effort to render his holding wealth-producing.

Although there has been no return to the original free grant system, the success of a land policy is no longer measured, as in the Wakefield period, by the revenue derived from Crown lands. As the public estate has dwindled, an expanding population has been steadily proceeding with the economic development of the continent, and fresh sources of revenue have become available. As a consequence, in shaping policies for the disposition of the remaining Crown lands, legislatures are now actuated by a single purpose—that of encouraging and facilitating permanent settlement on the land. Auction sales have been reduced to a minimum, and it is now accepted as a fundamental prin-

ciple that Crown land fit at present only for grazing should merely be leased, and not alienated.

The Perpetual Lease

But while governments are wisely refusing to alienate to the pastoralist land which may some day be utilizable by the agriculturist, it has for many years been a leading political question in most of the states whether they should continue to alienate even agricultural land to the small settler, or whether, instead, they should grant him, too, only a leasehold tenure. Supporters of leasehold cite John Stuart Mill in their favor, but draw their main inspiration from Henry George. The state, they contend, by leasing, instead of selling its lands, will gain in two ways: (1) By periodically re-appraising capital values it will be able to secure for itself a share of the "unearned increment"; (2) by demanding from the lessee in possession "perpetual residence"—or, more precisely, residence for several months each year—it will be able to insure that homesteads will be permanently occupied as such instead of passing into the maw of a big estate. The lessee also will benefit, they argue, for he, being no longer obliged to purchase the land, will be able to reserve his capital for the improvement and development of his holding. His lease, moreover, will be almost as good to him as a freehold, for it will be transferable by sale or otherwise.

Advocates of freehold declare that the unearned increment, as far as rural land at least is concerned, is in large measure due to the energy and enterprise of the farmer himself; moreover, they assert, the probability of an increase in the value of his holding constitutes a powerful inducement to face the hardships and uncertainties of life

on the land. They maintain further that the desire to possess a freehold home is deep-rooted in the instincts of the human race, and that the man who knows that his property is his very own has a greater feeling of security than a lessee and makes a better and more contented settler. They admit that leasehold offers the settler certain monetary advantages, but, they contend, these are not great, for the terms of payment imposed upon the conditional purchaser have been made very easy. Finally, they point out, there attaches to leasehold the immediate disadvantage that it is viewed askance by financial houses; it is much easier to mortgage freehold property and thus borrow money for its development, and though state schemes of "advances to settlers" have been instituted they are not adequate to offset the disadvantage as borrowers under which leaseholders labor.

South Australia introduced the perpetual leasehold in 1888, and Victoria and New South Wales followed suit a few years later. But in each case the principle was applied only to a limited extent, the freehold conditional purchase remaining available to settlers *pari passu*. These showed a marked preference for freehold, and in New South Wales an act was passed by the Liberals in 1908 conferring on those who had taken up perpetual leaseholds the right to convert them at will into freehold tenures. In 1912 the Labor Government then in office withdrew this privilege, but in 1917 it was again restored by a Liberal administration. Queensland, however, is experimenting with the perpetual leasehold in bolder fashion than her neighbors, for at the time it was introduced there (1918), all further alienation was prohibited. Possibly, now that a freehold tenure is no longer obtainable, settlers may be-

come accustomed to the leasehold form and remain contented with it. This state has permanently alienated only one-eighth of her land, and there is just a possibility that the growing body of leaseholders may demand, not the freehold, but the rescission of existing freeholds, thus establishing the Utopia of the land nationalizer. However, those who desire such a consummation can draw little encouragement from such evidence as history affords.

But while governments, in recent years, have been zealously reshaping the terms and conditions under which settlers may acquire Crown lands, they have unfortunately had little good land left to offer, for by 1890 the greater part of the land most suitable for closer settlement had been alienated and aggregated into large freehold estates. In the face of this situation, legislation has been enacted providing for the repurchase of land from private owners, while land taxes have been imposed to hasten the disintegration of big holdings. It is necessary to outline what has been accomplished by each policy.

Land Resumption and Closer Settlement

Queensland was the first state to pass a Repurchase Act (1894), but was soon followed by West Australia (1896), South Australia (1897), Victoria (1898), and New South Wales (1901). Each of these acts merely authorized the government to purchase land from private holders by mutual agreement; none of them provided that the owner could be compelled to sell. The Queensland act was the only one which worked with any great success; under the others, few purchases were made, either because the price asked was too high, or because the properties submitted for sale were unsuitable for closer settle-

ment. The failure was most complete in New South Wales where, by 1904, although 29 estates had been offered for sale to the government, not a single purchase was made. As a consequence, in that year, statutory power of compulsory resumption was given. A board was set up to recommend land suitable for closer settlement, and the administration was empowered—subject to the approval of Parliament—to purchase the land by agreement with the owner, or, failing agreement, to resume it compulsorily at a fair valuation. A similar power has since been granted by legislation in all the other states except South and West Australia.

Land thus acquired is subdivided into farms of suitable size and sold to approved applicants on conditional purchase tenure, with payments spread over at least 30 years, a term of residence and the erection of improvements being required. Table II shows the total areas acquired and allotted in each state for closer settlement up to June 30, 1923. Thus 4 million acres have been acquired, at an average price of approximately £4 an acre. Nearly the whole of this land has been allotted to settlers, the holdings into which it has been cut up numbering 14,253 and averaging 270 acres each in area.

In addition, over 6 million acres in

the Commonwealth have been acquired from private owners and set apart, in connection with repatriation activities, solely for the settlement of returned soldiers. To this area 17½ million acres of Crown lands have been added, and, of the aggregate, over 22½ million acres have been subdivided and allotted in 23,058 farms.⁷

Contrary to what was anticipated, the compulsory powers have seldom been used. As land values have increased, landowners have been eager to realize a handsome profit over the £1 an acre for which they originally acquired their freeholds, and so have offered an abundance of land to the government. But high prices imply a heavy financial burden, for which reason the progress of resumption has necessarily been slow; and progress has been the slower because the very fact that the government is the purchaser increases the sale price, while each resumption tends to force up the price of future purchases. The government has been obliged to recoup itself by the prices charged to settlers, and these

⁷ *Op. cit.*, p. 198. In all the states, it may be noted, rural credit schemes are in operation, providing for the loan of money to settlers to enable them to erect buildings and effect other improvements on their holdings. The advances made by the six states up to June 30, 1923, totaled £85,882,884 (*ibid.*, p. 207).

TABLE II. DATA ON LAND ACQUIRED AND ALLOTTED FOR CLOSER SETTLEMENT, TO JUNE 30, 1923*

	New South Wales	Victoria	Queensland	South Australia	West Australia	Tasmania	Total
Area acquired—acres....	1,342,600	737,900	785,300	729,100	451,800	100,700	4,147,400
Total purchase price....	£5,679,000	£5,299,000	£1,955,100	£2,419,600	£451,600	£365,200	£16,169,500
Average price per acre....	£4-5-0	£7	£2-1-0	£3-6-0	£1	£3-12-0	£3-18-0
Number of farms allotted.	3,040	4,758	2,398	2,948	808	303	14,255
Area allotted—acres....	1,335,300	624,200	762,000	692,300	355,700	81,600	3,851,100
Average acreage allotted per settler.....	439	131	318	235	440	269	270
Cost of land resumption per settler.....	£1,866	£917	£652	£775	£440	£887	£1,053

* Commonwealth Year-Book, No. 17, p. 186.

have sometimes been so high that only a highly skilled man favored by good seasons could hope to succeed. But many men with poor qualifications have been allotted farms, and among this group especially failures have been numerous.

It is possible that economic forces have done as much as government action to bring about subdivision. Owners of large estates which have become valuable for agricultural purposes have sold or leased portions to settlers directly, or have cut up suitable parts into small holdings and let these to farmers on shares. Under this system, the landowner generally supplies the stock, seed, and implements, and the tenant the labor, the former taking from one-half to two-thirds of the produce. Competent farm laborers willing to work for wages are scarce and this arrangement affords the landowner a satisfactory alternative means of getting his land put to its best use. The share farmer, for his part, secures a better return and greater independence than he could as a hired man; he can keep what little capital he may have, and, if he is able, add to it until he is in a position to buy a holding of his own. New South Wales is the only state for which statistics showing the extent of share farming are available. In this state, in 1922, 3,970 share farmers had under cultivation 956,000 acres,⁸ of which about one-quarter was devoted to dairying and practically all the rest to wheat-growing.

TABLE III. ALIENATION OF LARGE ESTATES, 1910

Number	Size (in acres)	Area (in acres)
111	over 500	10,175,000
382	20,001 to 50,000	11,335,000
659	10,001 to 20,000	9,085,000
1,152		30,595,000

Land Taxation⁹

Taxation of the unimproved value of Australian land began in South Australia in 1884; New South Wales followed in 1895, West Australia in 1907, and Queensland in 1915, while in 1910 the Commonwealth Parliament imposed a federal land tax. The need for additional revenue provided the occasion and the excuse for the imposition of state land taxes, but the various state governments had also ulterior motives—to break up big estates, especially those belonging to absentees, and to force idle or under-utilized land into better use. Fiscally, the state land taxes have proved relatively unimportant.

In 1910 there were in the Commonwealth (Queensland excluded) 1,152 large estates, alienated or in process of alienation, as shown in Table III. At that time the total number of holdings of 1 acre or over was 210,000, comprising an area of 107,100,000 acres. Thus $\frac{1}{2}$ of 1% of the total number of owners had in their hands 29% of the alienated area, and many of the big freeholders held large leasehold areas also. Though the number of holdings of 10,000 to 50,000 acres had steadily increased, yet between 1890 and 1910 the number of estates of over 50,000 acres had diminished. But the opinion was widely held that disintegration was proceeding too slowly, and it was primarily to hasten the process that in 1910 a federal land tax was passed. The tax was made progressive on all residents' estates worth over £5,000 unimproved value, and on all land owned by absentees, the rate for the latter being higher.

⁸ New South Wales *Year-Book*, 1923, p. 473.

⁹ The brief account of land taxation here given is based upon an article by Professor H. Heaton in the *Quarterly Journal of Economics*, May, 1925.

Contemporaneously with the land tax, economic forces as well as the government policy of land resumption have been inducing the subdivision of large estates, and it is practically impossible to determine the precise effect exercised by the land tax alone. Professor Heaton, however, after a careful analysis of the Reports of the Federal Commissioner of Taxation, reached the following conclusions:¹⁰

1. The imposition of the tax led, especially in the early years, to a redistribution of land, especially of large holdings, but much of this distribution was nominal rather than real, being effected mainly in order to evade the tax.

2. Pastoralists sold valuable land in order to reduce the taxable value of their holdings and to a small extent bought back inferior land for pasture.

3. Apart from companies containing absentee shareholders, the menace of the overseas landowner had been exaggerated, for in 1910 only 127 absentees owned lands worth more than £20,000 unimproved value.

4. "In New South Wales, the chief home of very large holdings, the number of estates of over 50,000 acres dropped rapidly from 99 in 1910 to 84 in 1912, and then fell steadily to 71 in 1920. There were 267 estates of between 20,000 and 50,000 acres in New South Wales in 1911, and the number had grown from 202 in 1910. By 1914 there were only 235, and in 1920 only 229. In Victoria the last holding of over 50,000 acres disappeared soon after 1912, and the number of estates between 10,000 and 50,000 acres fell from 173 in 1910 to 152 in 1919. In South Australia there was a similar fall from 76 to 54."

5. It is probably true that there are

now very few really big estates which are capable of subdivision for wheat or mixed farming.

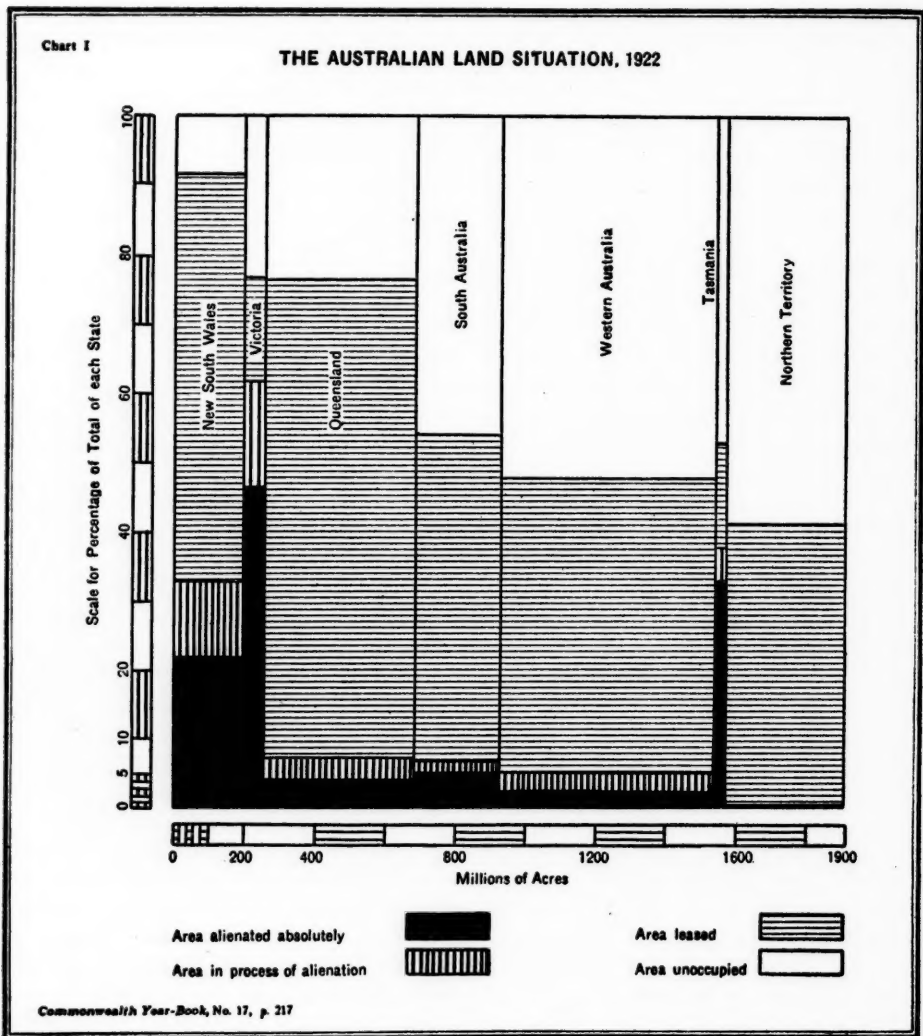
Urban Concentration

In 1921, of the Commonwealth population of 5.44 million, 3.38 million, or 62.1%, were urban dwellers; 2.39 million, or 43.1%, were concentrated in the six capital cities, while two of these—Sydney and Melbourne—alone contained more than 30% of the total population of the continent. The urban congestion which these facts illustrate is universally regarded as the most unsatisfactory feature of land settlement in Australia. Bad land legislation in earlier years is commonly held to be the main cause of this state of affairs, but a share of the blame is also laid upon protection, while a further partial explanation is found in the contrast between the comforts and social amenities which city people enjoy, and the hardship, isolation, and dulness of life in the country. These political and social factors are responsible for the situation, however, to only a very limited extent; the fundamental causes of the numerical disproportion between the population of the country and that of the capital cities are geographical and industrial. Nature has placed the fertile, moist areas near the coast, and has made most of the land suitable for white settlement pastoral country. The pastoral industry demands the maximum of space but the minimum of labor, so that to carry it on only a scanty and attenuated rural population is required. The capitals were the chief ports, and hence became centers for the collection and export of wool. The absence of navigable rivers precluded the growth of large inland distributing centers, and when in time railways were built it was

¹⁰ *Loc. cit.*

natural that, to facilitate the transport of wool to the port of shipment, they should have been made to radiate from the capital, thereby swelling its size. The development of agriculture has not, to any extent, redressed the balance. About 79% of the area under crop in Australia is devoted to wheat and hay; since these can be profitably grown there only on comparatively large holdings,

even the agricultural areas are for the most part sparsely populated. Dry farming, irrigation, and refrigeration, it is true, have made possible closer settlement in many districts, but meanwhile the growth of the export trade in wheat, fruit, and dairy produce has increased the importance of the capital cities as distributing centers, and thereby promoted their growth.



The march of science and invention has also intensified the urban concentration. Modern labor-saving agricultural machinery has considerably diminished the man-power required on any kind of farm, and has correspondingly increased the farmer's demand for the products of the factory. All the complex factors which, in the modern industrial age, have multiplied man's wants and enlarged his capacity for satisfying them have given rise, throughout the world, to a thousand new city industries. Young though she is, Australia has already made much progress along manufacturing lines, and her capital cities, with their favorable situation, have become important manufacturing as well as commercial centers.

The Outlook for the Future

What of the future? Of this great continent, the heart is a great trade-wind desert, and little more than one-third is suitable for profitable white settlement. The habitable rim between desert and sea varies in width from 40 to 400 miles, but physiographic and climatic conditions are such that the

bulk of the population will always be found in the southeast corner. Had the continent been situated but 10 degrees further south, out of the path of the desert-forming winds, the interior, Professor Taylor believes, would have resembled the Mississippi basin, and Australia would probably equal the United States in population, as it does in area. As it is, it is unlikely that the continent will ever be capable of supporting a larger white population than 50 million;¹¹ but as the present population is less than 5½ million, there is room for vast expansion. Australia is anxious to secure immigrants of a good type to people her empty spaces, but the cost of railway building, of irrigation, and of land resumption—all of which must be undertaken to promote land settlement—is so heavy, while the public credit is already so far strained, that the rate at which new settlers can be established on the land cannot be rapid. Yet Australian statesmen are grappling boldly and wisely with the land problems that face them, and though the progress of settlement is likely to be slow it is reasonably certain that it will be sure.

¹¹ G. Taylor (Physiographer to the Commonwealth Bureau of Meteorology and Professor of Geography in the University of Sydney), *Australia* (1915 edition), p. 251. Professor Taylor summarizes the potentialities of the continent thus: 44%

is arid (25% wholly useless, and 19% useless in bad seasons); 17% is suitable for tropical agriculture; and 39% is suitable for profitable white settlement (28% good pastoral country, and 11% good temperate farming country).

A STUDY OF UTILITY FINANCIAL STRUCTURES: REVENUE PRODUCTION RATIOS¹

By A. E. PATTON AND O. GRESSENS

TO THE academician who continually studies the relationships existing between the various income statement and balance-sheet items, all financial ratios are important. To him each ratio has a well-defined meaning and each variation a distinct significance. To executives of large business enterprises, on the other hand, the significance of some financial ratios is not distinct, and different ratios have different degrees of importance. One group of ratios, however, which is recognized generally by business administrators as being important is the group of revenue production ratios. Possibilities of increasing profits by increasing the rate at which invested capital produces revenues always are of interest and invariably command attention. Consequently, business men constantly study capital turnover and continually check and forecast the productiveness of their investments.

¹ EDITORIAL NOTE: This is the third of a series of articles by these authors on the subject of financial structures of public utilities. It is based on the data contained in *Bulletin No. 10*, Bureau of Business Research, University of Illinois. For the first article, which treated scope and method, see the *JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS*, April, 1926. For the second article, which treated current position, see the same *JOURNAL*, July, 1926. The fourth article, which will deal with Net Income Ratios, will appear in the May issue.

In Footnote 1 of the article in the July, 1926, issue of this *JOURNAL* a statement was made that the third article of this series would deal with the distribution of investments and that it would appear in the October issue. After work had been started on the study, it was deemed advisable to change the order of the articles and to substitute this study of revenue production ratios for the study of the distribution of investments. The article on the distribution of investments will ap-

pear in the August, 1927, issue of this *JOURNAL*. Owing to this change and to a variety of circumstances beyond the control of the authors, the tremendous amount of detail connected with the statistical calculations of revenue production ratios could not be completed in time for the article to appear in the October, 1926, issue.

If these revenue production statistics are worthy of such close attention in competitive business, they are doubly worthy of study in the public utility industry, where fixed investments are large, where incomes are limited to fair returns upon investments, and where monopoly profits are prohibited by law. To the utility executive, therefore, revenue production ratios are of the first order of importance. Slight reductions in gross income often cause serious losses to the common stockholders.

In this study, therefore, an attempt has been made to determine:

1. Whether or not there is a "normal" or representative ratio of revenue produced to total operating investment for the utility industry considered as a whole.² In other words, whether there is a representative ratio of capital turnover;³

2. Whether or not there is a "normal" or representative ratio of revenue produced to total operating investment for the utility industry considered as a whole.² In other words, whether there is a representative ratio of capital turnover;³

² The assets considered in these studies are operating assets only; all outside investments have been eliminated. For a full discussion of the methods used in standardizing the financial statements for these studies, see "A Study of Utility Financial Structures: Scope and Method," *JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS*, April, 1926, and Footnote 5 of "A Study of Utility Financial Structures: Current Position," *JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS*, July, 1926, and *Bulletin No. 9*, Bureau of Business Research, University of Illinois.

³ The "normal" ratio, as used in this study, is not an ideal ratio, but it is the representative ratio.

mal" or representative ratio of gross revenues to fixed investment for the utility industry considered as a whole;

3. Whether or not there is a "normal" or representative ratio of gross revenues to stockholders' equity for the industry as a whole;⁴

4. Whether or not these ratios vary with variations in the sizes of utility companies;

5. Whether they vary with the types of utilities;⁵

6. Whether they vary with geographical locations; and

7. Whether or not they vary with changes in general business conditions.

1. Representative Ratio of Capital Turnover of the Public Utility Industry

The first of the ratios considered in this study, gross revenues to total operating assets, indicates the rate of capital turnover. That is, it indicates the time required by the industry to produce gross revenues equal in amount to the total operating assets. In the public utility industry, particularly in the electric light and power business, the consensus of opinion seems to be that

In other words, it is that ratio which occurs most frequently among the companies included in the sample. Or, more concretely, it is that value about which the ratios of the greatest number of operating companies tend to concentrate. For a full discussion of the representative ratio, see Footnote 3 of "A Study of Utility Financial Structures; Current Position," *JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS*, July, 1926.

⁴ Stockholders' equity, for purposes of this study, is considered as being expressed by the total of preferred stock, common stock, and surplus. This is not comparable, therefore, to that definition of stockholders' equity which is limited to the equity of common stockholders. The distinction here, however, is between debt and ownership capital. Preferred stock is sometimes of the nature of a junior lien obligation. Wherever this was found to be the case, it was included in total debt and not in net worth. It is often difficult to come to a decision

approximately 5 years are required to turn the capital once. In other words, it is said that the annual gross revenues equal 20% of the invested capital. It is the purpose of this study to examine the accuracy of this belief.

Although there are essential differences between the various types of utilities, a general characterization of the industry is valuable in order to distinguish it definitely from industry in general. The ratios of this study are valuable, therefore, because they indicate some of the essential differences between utilities and other types of businesses, and because they set forth the peculiarities of utility financial structures.

In order to determine the representative ratio of capital turnover for the utility industry as a whole, a study has been made of 200 companies.⁶ The ratios of capital turnover for these companies have been calculated for the years 1915 to 1924 inclusive, the data have been classified, and a frequency distribution has been made so that the characteristics of the data may be readily observed. And finally, a frequency curve has been fitted to the histogram of this distribution (see Table I and

as to the proper treatment of preferred stock, and absolute accuracy, therefore, cannot be claimed in this particular.

⁵ Telephone companies, water companies, and municipally owned utilities have been excluded from this study. Telephone companies were omitted because of the fact that the Bell System, controlled by the American Telephone and Telegraph Company, dominates the telephone industry, and a study of the financial structure of the Bell System is virtually a study of the telephone industry. Water companies have been excluded because of the predominance of municipal ownership among them. And municipally owned utilities have been excluded because ordinarily no attempt is made to earn a return upon the capital invested in them.

⁶ In the cases of some of these companies, balance-sheets for each of the ten years were not available. Such balance-sheets as could be obtained, however, were used.

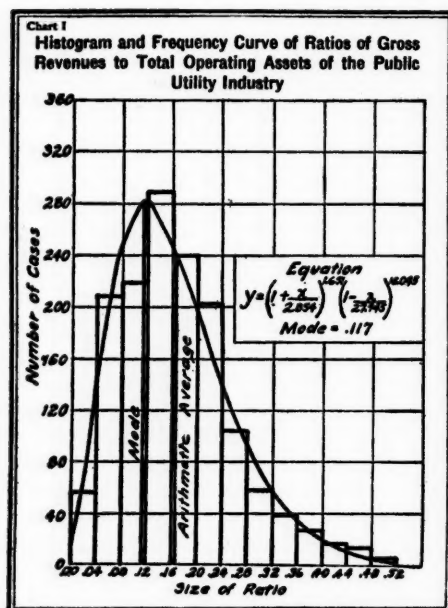


Chart I). The histogram presents the general characteristics of this distribution; the curve fitted to the histogram, however, shows clearly that for the great majority of companies this ratio falls below the generally accepted ratio of .20, and that the concentration is at a point considerably below .20. The representative ratio which is determined by calculating the mode of this fre-

*If the mode had been approximated directly from the frequency distribution, it would have fallen in the class interval of .12-.16, for this is the interval containing the largest number of cases. When approximated directly from the distribution, however, the mode is not based upon all the observations—a condition which is necessary in order to obtain a true representation. When calculated from the frequency curve, on the other hand, the value of the mode is based upon all of the observations. This method yields the theoretical point of highest frequency, which, in these studies, is called the representative ratio.

*For a discussion of the difference between the arithmetic average and the modal average, see "A Study of Utility Financial Structures: Scope and Method," JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS, April, 1926.

quency curve is .1173, or approximately .12.⁷ In other words, the highest frequency is at that point where the value of this ratio is .12. This value, therefore, is the value of the ratio that can most reasonably be called the representative ratio of the industry considered as a whole. The ratio indicates that operating investments of public utilities are turned over only once in 8½ years instead of once in 5 years. The arithmetic average for this group of companies, on the other hand, indicates that only 6 years are required to turn over the operating investment.⁸ The value of the arithmetic average is .1678, or approximately .17. Chart I, however, shows clearly that the arithmetic average is less typical than the modal value. The arithmetic average falls at a point where there are fewer actual cases than at the mode, and also where there are fewer actual cases close together than at the mode. The justification, however, for calling a particular ratio typical or

TABLE I. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO TOTAL OPERATING ASSETS OF THE PUBLIC UTILITY INDUSTRY*

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.039	56	19.2
.04—.079	208	116.9
.08—.119	219	242.9
.12—.159	289	280.6
.16—.199	239	255.8
.20—.239	203	203.3
.24—.279	104	146.7
.28—.319	58	98.3
.32—.359	39	61.9
.36—.399	27	36.3
.40—.439	17	20.6
.44—.479	14	10.9
.48—	6	5.1

*The first column of this table and of all the following tables indicates the size of the ratio of gross revenues to total operating assets; the second column shows the number of times a particular value actually occurs; and the third column shows the theoretical frequencies calculated from the curve fitted to the histogram. For example, gross revenues to total operating assets ratios between the values .00 and .039 actually occur in 56 cases, and theoretically would occur in 19 cases. The last column, however, has not been made directly comparable to the second column, for the theoretical frequencies are here given as the y ordinates. No correction has been made to restate them as areas.

representative is that a greater number of actual cases occur at that value, and at values immediately adjoining it, than at any other value. The representative ratio, therefore, must be the value at which the highest ordinate of the frequency curve falls. In the case under consideration, the value of this ratio is approximately .12. For the electric railway, gas, and electric light and power industries considered as a whole, therefore, approximately $8\frac{2}{3}$ years are required to produce gross revenues which equal the capital invested in operating assets, which upsets the prevailing standard.

II. Representative Ratios of Gross Revenues to Total Operating Assets of Utility Companies of Various Sizes

When the 200 companies included in this study were classified according to size, and an analysis had been made of the ratio of gross revenues to total operating assets for the ten-year period 1915 to 1924 inclusive, substantially the same results were obtained as those obtained from the study of the industry as a whole.⁹

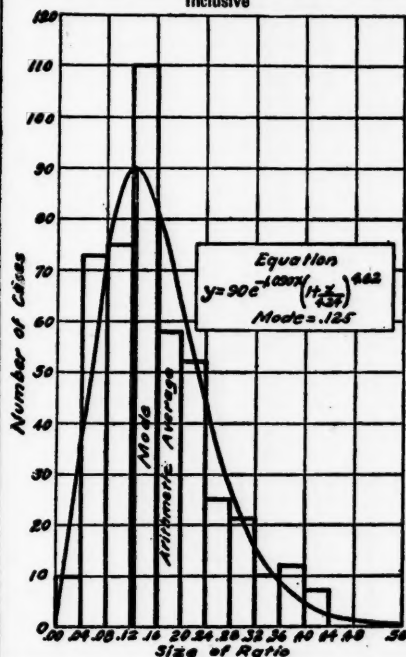
Companies having total operating

TABLE II. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO TOTAL OPERATING ASSETS OF UTILITY COMPANIES HAVING ASSETS FROM \$5,000,000 TO \$9,000,000 INCLUSIVE

Class Interval	Observed Frequencies	Graduated Frequencies
.00-.039	10	8.1
.04-.079	73	41.7
.08-.119	75	77.2
.12-.159	110	90.0
.16-.199	58	80.5
.20-.239	52	60.7
.24-.279	25	41.5
.28-.319	21	24.8
.32-.359	10	14.2
.36-.399	12	7.7
.40-.439	7	4.0

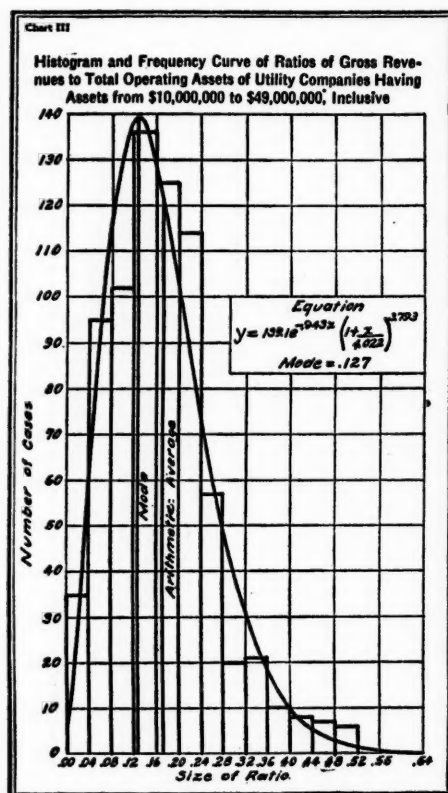
Chart II

Histogram and Frequency Curve of Ratios of Gross Revenues to Total Operating Assets of Utility Companies Having Assets from \$5,000,000 to \$9,000,000, Inclusive



assets from 5 to 9 millions of dollars, inclusive, were studied first (see Table II and Chart II). It is immediately obvious that the distribution in this case is similar to that of the industry as a whole. In fact, the value of the mode, or in other words, the representative ratio, is .1246. This ratio is very close to that of the entire industry. The arithmetic average, which is .1613, is also very close to the arithmetic average of the industry as a whole. The distribution differs, however, in that a proportionately smaller number of cases is concentrated in the higher class intervals. It is nevertheless true of this

⁹ Companies having assets of less than 5 millions of dollars were not included in this study.



group also that approximately $8\frac{1}{3}$ years are required to turn over the capital invested in operating assets.

The next group of companies studied were those the operating assets of which ranged from 10 to 49 millions, inclusive (see Table III and Chart III). The general characteristics of this distribution do not differ materially from those already studied. The value of the mode, or representative ratio, determined from the frequency curve, is .1270, or approximately .13. This ratio is slightly higher than the ratios obtained in the two previous classifications, but the difference is not significant.

Substantially the same result was obtained again from a study of com-

panies having operating assets in excess of 50 millions of dollars (see Table IV and Chart IV). The value of the representative ratio in this case was found to be .1338. The arithmetic average, on the other hand, is .1655. There is, however, an important difference between this distribution and those preceding. In this distribution, there is a decided lessening in skewness in the frequencies. In other words, a greater number of the original observations fall into the higher class intervals. Although the typical or representative ratio is in this case about the same as in the previous cases, the general condition among the larger companies is a shorter period of capital turnover than among the smaller companies. This fact tends toward the conclusion that larger utility organizations seem to gain greater financial efficiency than do smaller companies.

III. Representative Ratios of Gross Revenues to Total Operating Assets of Gas and Electric, Electric Railway, and Holding Companies

In order to determine whether or not there is a tendency for this ratio to vary

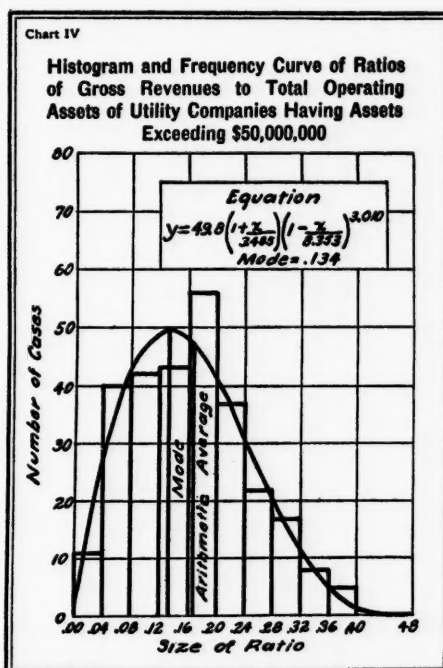
TABLE III. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO TOTAL OPERATING ASSETS OF UTILITY COMPANIES HAVING ASSETS FROM \$10,000,000 TO \$49,000,000 INCLUSIVE

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.039	35	13.1
.04—.079	95	67.6
.08—.119	102	120.8
.12—.159	136	139.1
.16—.199	125	125.8
.20—.239	114	97.5
.24—.279	57	68.0
.28—.319	20	43.9
.32—.359	21	27.3
.36—.399	10	15.5
.40—.439	8	8.7
.44—.479	7	4.7
.48—.519	6	2.5

between different types of utilities, the 200 companies were classified according to kind, and each kind was separately studied.

The gas and electric utilities were analyzed first.¹⁰ In this group, the representative ratio between gross revenues and total operating assets was found to be .1332, which is somewhat higher than the representative ratios of the groups thus far studied (see Table V and Chart V). The turnover period for this group, therefore, is less than seven years, while that of the previous classification was found to be more than eight years. The arithmetic average for this group was found to be .1783, or approximately .18. As compared with the ratios of the industry as a whole, therefore, the ratios of the gas and electric companies are high. The general distribution, however, does not differ materially from the distributions already studied. There is again, for example, no distinct tendency toward a grouping of companies in the higher class intervals.

For electric railways the representative ratio of gross revenues to total operating assets was found to be .1270 (see Table VI and Chart VI). Although the distribution of the ratios is similar to that of the gas and electric



companies, the representative ratio is lower; approximately 7¾ years are required by electric railways to turn their investments in operating assets.

Regarding holding companies, on the other hand, no definite conclusions can be drawn. An examination of the distribution of this ratio for such companies indicates immediately that a curve cannot be fitted to the histogram with sufficient accuracy to yield a representative ratio (see Table VII and Chart VII). The histogram is so irregular that no particular value can be designated as typical, and the curve yields such a poor fit that the inconclusiveness of generalizations is apparent.

TABLE IV. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO TOTAL OPERATING ASSETS OF UTILITY COMPANIES HAVING ASSETS EXCEEDING \$50,000,000

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.039	11	2.2
.04—.079	40	10.1
.08—.119	42	32.1
.12—.159	43	45.6
.16—.199	56	49.8
.20—.239	37	46.5
.24—.279	22	38.3
.28—.319	17	28.0
.32—.359	8	17.8
.36—.399	5	9.3

¹⁰ Gas and electric light and power companies have been studied together owing to the fact that both services are so often sold by the same company. This fact makes the task of separating the revenues and assets involved in each of these services extremely difficult. The two types have therefore been considered as one group.

The value of the mode of this frequency curve is .0739, but it is impossible to say whether or not this ratio has any meaning; the histogram is too irregular for any conclusions.

IV. Representative Ratio of Gross Revenues to Total Operating Assets According to Geographical Locations

In order to determine whether or not there is a tendency for the ratio of gross revenues to total operating assets to vary among different sections of the country, a grouping of the companies was made according to their geographical locations. For this purpose, the United States was divided into four sections: eastern, middle-western, western, and southern.¹¹

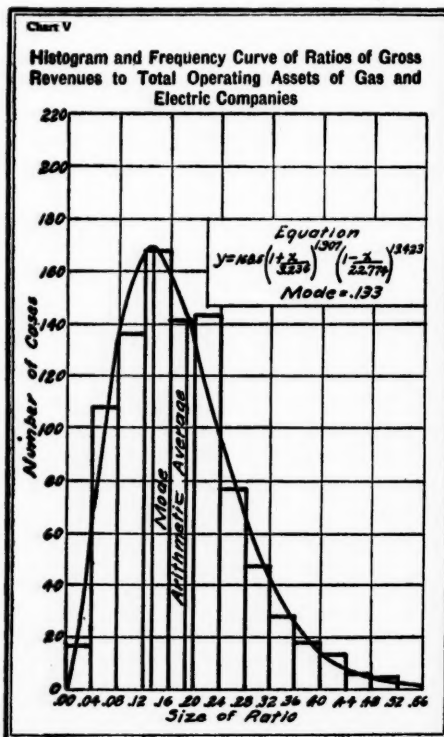


TABLE V. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO TOTAL OPERATING ASSETS OF GAS AND ELECTRIC COMPANIES

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.039	17	6.0
.04—.079	108	83.2
.08—.119	136	148.2
.12—.159	168	168.5
.16—.199	141	154.1
.20—.239	143	122.9
.24—.279	77	88.5
.28—.319	47	58.6
.32—.359	28	36.0
.36—.399	18	20.6
.40—.439	13	11.0
.44—.479	6	5.4
.48—.519	4	2.5

The approximated representative ratio of the eastern companies included in this study is .1798, and of the middle-western, .1414.¹² Compared, therefore, with the middle-western group, the eastern companies are characterized by a shorter period of capital turnover. This conclusion is further borne out by the distributions; the ratios of the eastern group center about higher class intervals than do those of the middle-western group.

¹¹ For an enumeration of the states included in each section see Bulletin Number 9, Bureau of Business Research, University of Illinois.

¹² Owing to the fact that the distributions of these classifications are essentially the same as the distributions already studied, the charts have not been included and the representative ratios have not been calculated directly from curves fitted to the histograms. The representative ratios have, on the other hand, been determined by Pearson's approximation formula,

$$m = 1 + \frac{fc \times c}{f'c + fc}$$

These representative ratios, therefore, are not directly comparable with those of the above groupings, which were more accurately determined from the frequency curves. They are, however, comparable among themselves, and they serve to show the similarity of the results from these classifications as compared with the results obtained in the previous classifications.

The values of these ratios are by the nature of their approximation somewhat high. An accurate determination from a frequency curve would lower them.

TABLE VI. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO TOTAL OPERATING ASSETS OF ELECTRIC RAILWAY COMPANIES

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.039	12	0.0*
.04—.079	34	24.0
.08—.119	60	69.8
.12—.159	88	85.6
.16—.199	84	74.7
.20—.239	59	55.7
.24—.279	27	36.9
.28—.319	11	22.7
.32—.359	7	13.2
.36—.399	4	7.4
.40—.439	4	4.0
.44—.479	8	2.1

*Frequency at value $x = .007$.

The approximated representative ratio of the western companies is .0878, which indicates a tendency for these companies to turn their operating capital once in 11 or 12 years. The concentration of the general distribution in the lower class intervals substantiates this inference.

In the southern section, on the other hand, the approximated ratio is .1408, which is close to the values of the ratios for the eastern and middle-western companies.

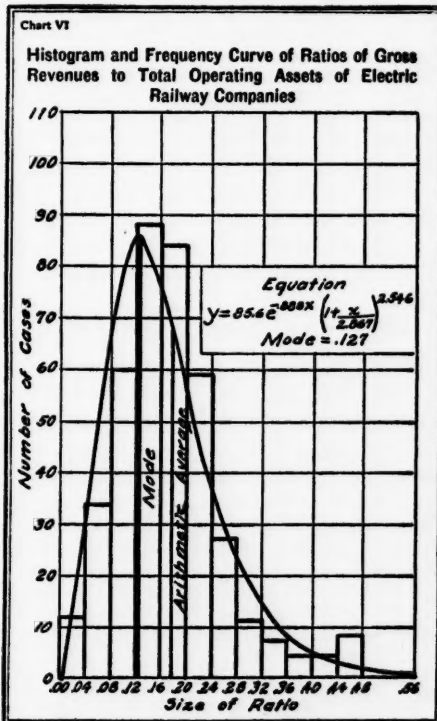
The results of this classification tend to indicate, therefore, that with the exception of the western companies, geographical location does not appreciably affect the ratio of gross revenues to total operating assets. If, however, this ratio is any criterion of financial efficiency, and if this study is representative, the western companies tend to be least efficient in this respect and the

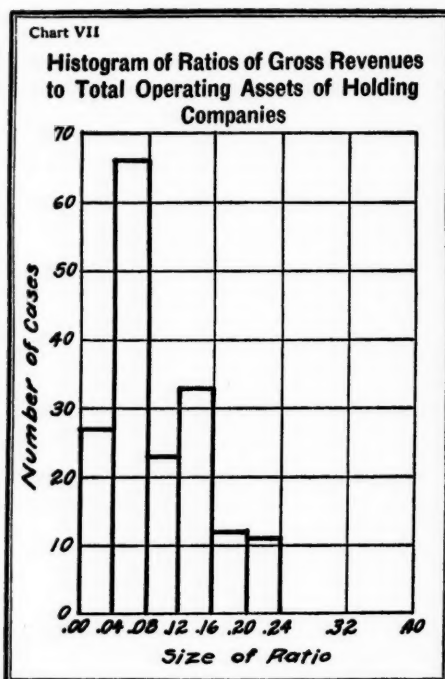
¹² Here again, the values of the representative ratios have been determined by Pearson's approximation formula. The tables giving the actual distributions are not included in this study, owing to the lack of space. No histograms and frequency curves have been presented. The approximated ratios are comparable among themselves but they are not directly comparable with representative ratios that have been calculated from frequency curves.

eastern companies appear to be most efficient.

V. Representative Ratio of Gross Revenues to Total Operating Assets of the Public Utility Industry for the Years 1917, 1919, 1921, and 1924

In an attempt to determine whether or not the ratio of gross revenues to total operating assets varies with changes in general business conditions, a study has been made of the ratios for various typical years. For the year 1917, a war year, the approximated representative ratio was found to be .1376.¹³ For 1919, a post-war boom year, the approximated ratio was .1464; for 1921, a depression year, it was .1413; and for 1924, a recovery year,





.1396. These results indicate that changes in the business cycle seem to have no significant effect upon the rate of turnover of operating assets.

VI. Representative Ratios of Gross Revenues to Fixed Assets

Another ratio that is ordinarily considered significant in industrial finance is that of gross revenues to fixed plant. From this ratio the length of time re-

¹⁴This substantiates a conclusion arrived at in an earlier study regarding the relative insignificance of the current ratio in utility finance. See "A Study of Utility Financial Structures: Current Position," JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS, July, 1926.

It must be remembered that in these studies all outside investments have been excluded from the balance-sheets. Only operating items are here considered.

¹⁵This fact will be brought out more clearly in a subsequent study of the representative balance-sheet ratios, which will appear in this JOURNAL.

quired to turn over the plant investment can be determined. Ordinarily, too, this ratio is low for companies which have a relatively high percentage of their assets in fixed plant, and it is high for companies that have a relatively low percentage of fixed assets. Owing to the fact that the percentage of investment in fixed plant in the utility industry is notably high, a comparatively low ratio of turnover would be expected.

When the companies had been divided into their various groupings and a representative ratio of gross revenues to fixed assets had been obtained for each group, it was found that the ratios were all substantially the same as the ratios of gross revenues to total operating assets. Furthermore, the distributions were so similar to those that have been presented that a detailed analysis was not considered essential in this study. For the public utility industry, the ratio of gross revenues to fixed assets is substantially the same as the ratio of gross revenues to total operating assets.¹⁴ The deduction of current and other assets makes no appreciable change in the ratio of gross revenues to total operating assets; current assets when compared with fixed assets form a small proportion of the total investment.¹⁵ This explains, of course, why the period of turnover of the fixed assets is substantially the same as that of the total assets.

TABLE VII. OBSERVED STATISTICS OF RATIOS OF GROSS REVENUES TO TOTAL OPERATING ASSETS OF HOLDING COMPANIES

Class Interval	Observed Frequencies
.00-.039	27
.04-.079	66
.08-.119	23
.12-.159	33
.16-.199	12
.20-.239	11

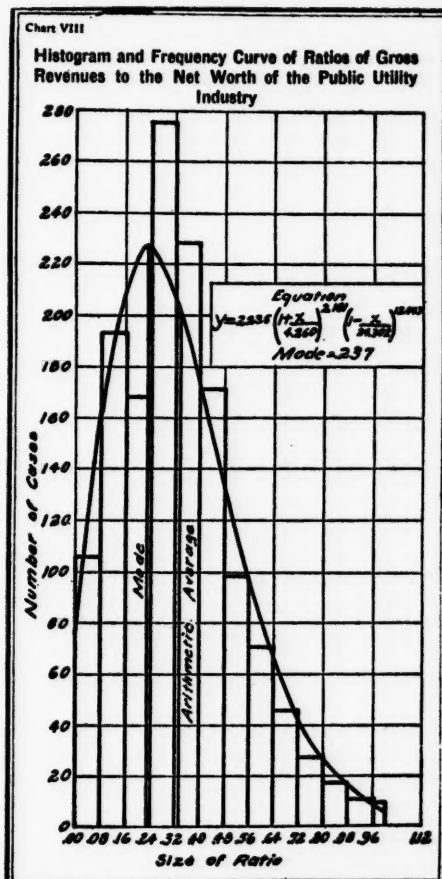
VII. Representative Ratio of Gross Revenues to Net Worth of the Public Utility Industry

Another relationship of importance is that between gross revenues and net worth. This ratio indicates the power over gross revenues that is concentrated in equity or ownership capital.¹⁶ Because of the fact that the utility industry is not markedly subject to the oscillations of the business cycle, the opinion has become widely accepted that it can safely be operated on a relatively small equity. With reference to the ratio under consideration, this means that a comparatively small equity controls the total earnings, and that this ratio of gross revenues to net worth might perhaps be high.¹⁷ As a matter of fact, however, the period of capital turnover of this industry is unusually long as compared with that of industry in general, and the periodical earnings are only a fractional part of the total investment.

The representative ratio of gross revenues to net worth for the industry as a whole was found by direct calculation of the mode of the frequency curve to be .2366, or approximately .24 (see Table VIII and Chart VIII). Consid-

TABLE VIII. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO THE NET WORTH OF THE PUBLIC UTILITY INDUSTRY

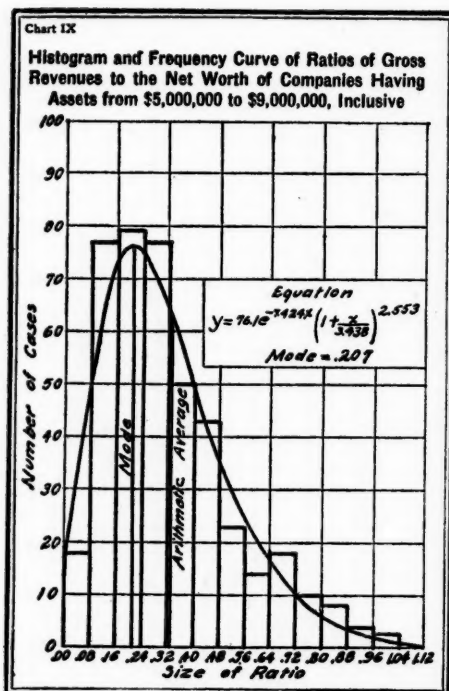
Class Interval	Observed Frequencies	Graduated Frequencies
.00-.79	106	66.2
.08-.159	193	149.9
.16-.239	168	205.9
.24-.319	275	223.5
.32-.399	228	210.1
.40-.479	171	178.1
.48-.559	98	139.1
.56-.639	70	101.4
.64-.719	45	69.5
.72-.799	27	44.9
.80-.879	17	27.4
.88-.959	10	15.7
.96-.999	9	8.5
Over 1.00	78	4.3



ering the gas, electric light and power, and electric railway companies, excluding municipally owned utilities, this ratio means that the typical situation for the group as a whole is one in which the gross revenues are 24% of the equity or net worth. Slightly more than

¹⁶ The equity, or net worth, for the purposes of this study has been taken to include common stock, preferred stock, and reserves which represented divisions of surplus.

¹⁷ The ratio here considered does not indicate the earnings which are made upon investments; the ratio of gross revenues to net worth indicates the time required to turn over the ownership capital and thus indicates the relative amount of revenues which are controlled by the equity.



4 years are, in other words, required for the gross revenues to equal the net worth of the industry.¹⁸

The fact that $8\frac{1}{3}$ years are required for the gross revenues of the industry as a whole to equal the total operating investment, with the further fact that the period of turnover of the net worth is slightly over 4 years, points to the conclusion that in the public utility industry the net worth is something less

¹⁸ Attention must again be called to the fact that a great many variations occur from this representative ratio. This fact is readily displayed by the frequency distribution of Chart VIII. There are many cases which do not fall near the representative ratio. The representative ratio, however, is that value about which the greatest number of cases group themselves. It is this concentration about the particular ratio which justifies designating it as representative.

¹⁹ This condition will be more carefully studied in a subsequent article which will appear in the issue of the JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS for August, 1927.

than 50% of the total investment in operating assets.¹⁹

VIII. Representative Ratio of Gross Revenues to Net Worth of Utility Companies of Various Sizes

When the companies were classified according to size, it was found that the representative ratio of gross revenues to net worth for companies having assets from 5 millions to 9 millions, inclusive, was .2070, or approximately .21 (see Table IX and Chart IX). In smaller companies, therefore, the typical situation seems to be one in which the period of turnover of the net worth is longer than the period for the industry considered as a whole, where the ratio was .24. The arithmetic average for the companies of this group substantiates this conclusion. The arithmetic average is .3250, as compared with .3330 for the whole industry. The difference is slight, but it is significant because it indicates a longer period of turnover for the smaller companies.

The variations in this ratio with variations in sizes of utility companies are accentuated when companies having assets from 10 millions to 49 millions

TABLE IX. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO THE NET WORTH OF COMPANIES HAVING ASSETS FROM \$5,000,000 TO \$9,000,000 INCLUSIVE

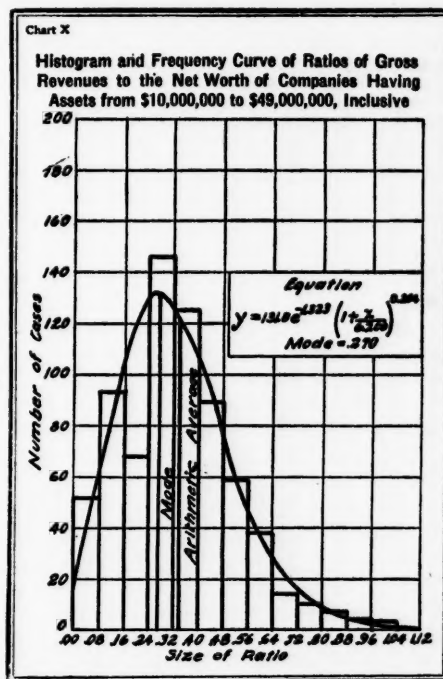
Class Interval	Observed Frequencies	Graduated Frequencies
.00-.079	18	36.3
.08-.159	77	66.5
.16-.239	79	76.1
.24-.319	77	69.5
.32-.399	50	55.6
.40-.479	43	40.7
.48-.559	23	28.0
.56-.639	14	18.4
.64-.719	18	11.6
.72-.799	10	7.2
.80-.879	8	4.3
.88-.959	4	2.5
.96-.999	3	1.5

inclusive are considered (see Table X and Chart X). For this group, the mode, or representative ratio, was found to be .2700, as compared with .21 for the group of smaller companies and with .24 for the industry as a whole. The inference is, of course, that for companies of larger size there is a tendency for the gross revenues to be proportionately larger in their relation to net worth. It will be remembered that the same tendency was discovered when the ratio of gross revenues to total operating assets was studied. The tendency is more pronounced here, however, than it was in the case of the former ratio.

This tendency toward higher ratios for larger companies is corroborated by the representative ratio of companies having assets exceeding 50 millions of dollars (see Table XI and Chart XI). The ratio for this group, as calculated from the frequency curve, was .2740, as compared with .270 for the next lower group of companies. The arithmetic average is .3470, as compared with .3320 for companies having assets from 10 to 49 millions. The differences in these ratios are not very great and probably are not very significant; they

TABLE X. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO THE NET WORTH OF COMPANIES HAVING ASSETS FROM \$10,000,000 TO \$49,000,000 INCLUSIVE

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.079	52	30.7
.08—.159	93	76.0
.16—.239	68	116.9
.24—.319	146	131.8
.32—.399	125	119.7
.40—.478	89	92.6
.48—.559	59	63.4
.56—.639	38	39.4
.64—.719	14	22.6
.72—.799	10	12.1
.80—.879	7	6.2
.88—.959	4	3.0
.96—.999	3	1.4

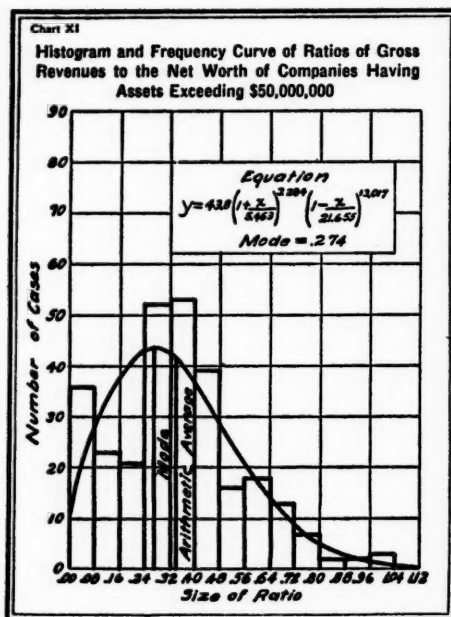


are, however, consistent with the tendency for larger companies to have shorter periods of turnover of net worth than have the smaller companies. This tendency may indicate that larger companies gain greater financial efficiency than do smaller companies; on the other hand, it may mean that larger companies are operating on relatively smaller equities, and consequently on a more hazardous basis.²⁰

IX. Representative Ratios of Gross Revenues to Net Worth of Gas and Electric, Electric Railway, and Holding Companies

In studying the utility companies, classified according to kind, it was found

²⁰ A more complete analysis of this tendency and of its significance will be made in the article of this series which will appear in the August, 1927, issue of this JOURNAL.



that gas and electric companies have a representative ratio of .2812. This is higher than the ratio calculated for the industry as a whole, the value of which was .2366 (see Table XII and Chart XII). Compared with the industry as a whole, then, the gas and electric com-

²¹ The curve which theoretically fits this distribution is Type I of the Pearsonian frequency curves—

$$y = y_0 \left(1 + \frac{x}{a}\right)^{m_1} \left(1 - \frac{x}{a}\right)^{m_2}$$

The value of the criterion K was found to be $-.85$. When this curve was fitted to the distribution, however, it missed the first group of observations entirely and rose rapidly to a modal value of .1667. In this case, therefore, Type III was used—

$$y = y_0 e^{\lambda x \left(1 - \frac{x}{a}\right)^p}$$

This curve yields a better fit than the theoretically correct Type I curve.

²² The curve which according to the criterion K should fit this distribution is Type I of the Pearsonian frequency curves. Such a curve, however, yields a negative mode; Type III gives similar results. A negative ratio of gross revenues to net

panies have a higher rate of turnover of net worth. In other words, they tend to show greater financial efficiency.

The same conclusion is true of the electric railway companies, which have a representative ratio of .2730, as calculated from the frequency curve fitted to the histogram of the distribution²¹ (see Table XIII and Chart XIII). This is lower than the value of the representative ratio of gas and electric companies, but it is higher than the same ratio for the industry as a whole.

In the case of holding companies, on the other hand, it seems that the representative ratio lies somewhere between .00 and .08 (see Table XIV and Chart XIV). No conclusions, however, can be drawn for holding companies.²² The raggedness and irregularity of the distribution point to the danger of generalization here, as was the case with the ratios of gross revenues to total operating assets of holding companies.

X. Representative Ratios of Gross Revenues to Net Worth of Utility Companies According to Geographical Locations

When the companies were grouped according to their geographical loca-

TABLE XI. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO THE NET WORTH OF COMPANIES HAVING ASSETS EXCEEDING \$50,000,000

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.079	36	17.3
.08—.159	23	30.9
.16—.239	21	40.5
.24—.319	52	43.8
.32—.399	53	41.1
.40—.479	39	34.5
.48—.559	16	26.5
.56—.639	18	18.6
.64—.719	13	8.7
.72—.799	7	7.3
.80—.879	2	4.1
.88—.959	2	2.1
.96—.999	3	0.98

tions, and approximated representative ratios had been determined, it was found that the eastern companies had a ratio of .2912; the middle-western, a ratio of .3507; the western, .1099; and the southern, .2729.²²

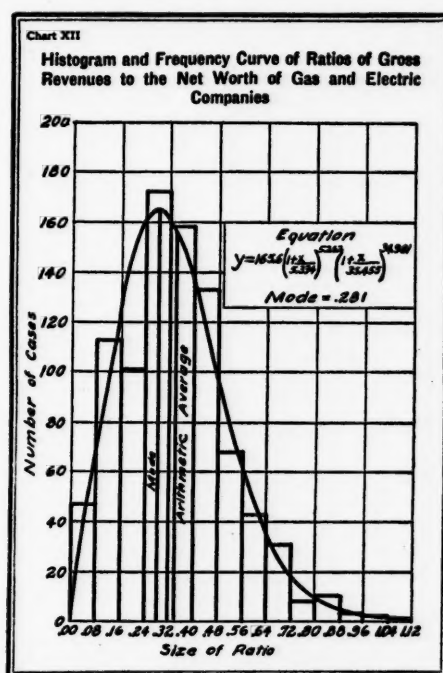
The most marked differences thus far discovered, obviously, appear in these groups. It is particularly noticeable that the middle-western companies have an unusually high ratio, and that the western companies have a very low one, which again tends to indicate the relative financial efficiency of the companies in various localities.

XI. Representative Ratios of Gross Revenues to Net Worth of the Public Utility Industry for the Years 1917, 1919, 1921, and 1924

Again, when the companies were studied to determine whether or not this ratio changed with changes in general business conditions, it was found that for the year 1917, a year of intense war activity, the approximated representative ratio was .2822. For 1919, a post-war boom year, it was .3475; for 1921, a depression year, it was .2913; and for 1924, a year of recovery, it was .2867. In only one year,

TABLE XII. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO THE NET WORTH OF GAS AND ELECTRIC COMPANIES

Class Interval	Observed Frequencies	Graduated Frequencies
.00-.079	47	36.6
.08-.159	113	95.2
.16-.239	101	146.9
.24-.319	172	165.6
.32-.399	158	150.5
.40-.479	133	116.1
.48-.559	68	78.7
.56-.639	43	47.8
.64-.719	31	25.4
.72-.799	8	13.0
.80-.879	10	6.2
.88-.959	3	2.7
.96-.999	2	1.1

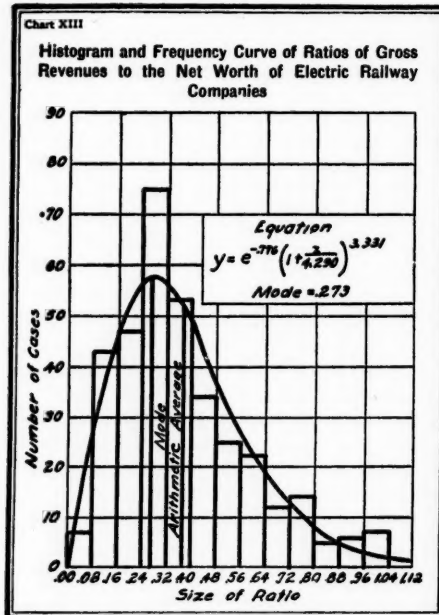


1919, was there any appreciable change in the representative ratio. This was a year of post-war boom. To say, however, that the higher ratio was due to prosperity is not conclusive, particularly since the histogram of the distribution shows a distinct bimodal tendency. Considering the four years together, there appears to be no other evidence of sig-

Footnote 22 continued from page 44)

worth can, however, mean only that there is no net worth but instead, a deficit. In such a case, the debt of the company would exceed the total assets. It is evident that such a situation is not representative. No curve, therefore, has been fitted to the histogram.

²² The exact values of the representative ratios were not calculated in these and the following cases. The values here given are, therefore, not directly comparable with ratios that have been calculated from frequency curves. They are, however, comparable among themselves. In each of these cases, the approximated representative ratio is, by the nature of its determination, higher than it would have been had it been calculated more exactly from a frequency curve.



nificant variations in this ratio for different years or for different stages of prosperity and of depression.

Conclusions

In the case of the ratio of gross revenues to total operating assets of the utility industry as a whole, the turnover

TABLE XIII. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF GROSS REVENUES TO THE NET WORTH OF ELECTRIC RAILWAY COMPANIES

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.079	7	10.9
.08—.159	43	33.8
.16—.239	47	52.0
.24—.319	75	57.9
.32—.399	53	53.6
.40—.479	34	43.9
.48—.559	25	33.0
.56—.639	22	23.3
.64—.719	12	15.7
.72—.799	14	10.1
.80—.879	5	6.3
.88—.959	6	3.9
.96—.999	7	2.3

TABLE XIV. OBSERVED STATISTICS OF RATIOS OF GROSS REVENUES TO THE NET WORTH OF HOLDING COMPANIES

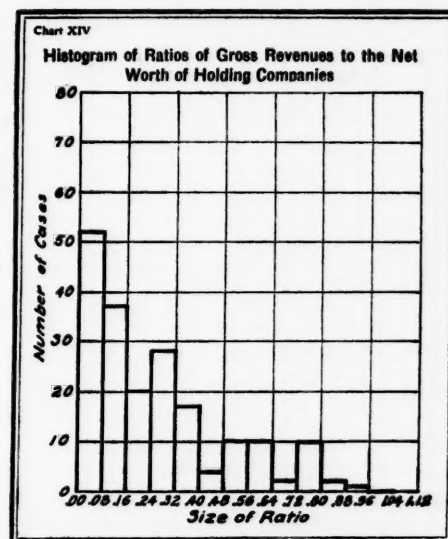
Class Interval	Observed Frequencies
.00—.079	52
.08—.159	37
.16—.239	20
.24—.319	28
.32—.399	17
.40—.479	4
.48—.559	5
.56—.639	5
.64—.719	2
.72—.799	5
.80—.879	2
.88—.959	1
.96—.999	0

period appears to be $8\frac{1}{3}$ years, which is considerably longer than is ordinarily assumed. In all classifications and groupings, the ratios of gross revenues to total operating investment agree closely. One exception occurs when the companies are divided according to geographical locations. The eastern companies show the shortest period of capital turnover, while the western companies show the longest period. In other words, the companies located in the eastern part of the United States show the highest productivity of gross revenues with a given unit of capital, while the western companies show the lowest. The representative ratio of the eastern group indicates a capital turnover period of 5 to 6 years, while the ratio of western companies indicates a period of 11 to 12 years.

A similar situation is found when the ratios of gross revenues to net worth are studied. No significant differences are disclosed until the companies are grouped according to their geographical locations. And here again the eastern companies show the largest amount of revenues controlled by the equity, and the western companies show the least amount.

Another trend that is not so marked, yet is significant, is the tendency for the capital turnover period to become shorter as companies of larger size are considered. This also is true, to a more marked degree, of the relation between gross revenues and equity. As companies increase in size, the control of equity over gross revenues tends to become increased.

In general, it may be said that the public utility industry is an industry of slow capital turnover, and of thin equity. The representative ratios show, however, that the period of turnover of operating capital is even longer, in most cases, than is ordinarily presumed. There are, of course, in each classification, many companies of which the periods of capital turnover are shorter than those given here, but these companies cannot be called representative. The representative value is that value about which the greater number of com-



panies concentrates, and the point of concentration in each of these studies invariably indicates a long period of turnover.

ABSENTEE FARM OWNERSHIP IN THE UNITED STATES

By HOWARD A. TURNER

THE words "absentee ownership" imply a condition wherein property is owned by persons who do not live on it, persons resident at a considerable distance. The words suggest that the interests of the owners, if taken care of at all, are perhaps placed under the control of an agent with cold businesslike methods, who is expected to get a maximum of rent, regardless of whether payment of rentals permits the tenants to hold body and soul together. Fortunately, there is relatively little of such absentee ownership in this country. Perhaps public opinion has a good deal to do with this, for the belief seems general that conditions are wrong where owners remove themselves from the land to engage in wasteful living while valuable lands which they own are held out of use unless those who desire to use them pay extortionate rentals.

With a population as mobile as ours, a certain amount of absenteeism may occur even in localities in which, under normal conditions, practically all of the farms are owned by the persons who operate them. This may come about in the case of the property of any owner-farmer dying intestate and leaving heirs who at the time are living in distant states or cities, even though in the course of a few years such places will usually work into the hands of owners who farm the land themselves.

Farmers of the near-marginal lands of the West have sometimes experienced a series of years during which

they have found it impossible to meet tax and mortgage payments out of farm receipts. At such times there has been a considerable movement of farmers from these farm lands to regions where employment could be more readily obtained. Many of these farmers who thus leave are owners who go to earn the payments coming due on their farms and enough more so that when they go back they will have a stake with which to begin again. While absent they may or may not be able to rent their land, but absentee landlordism such as this is not a serious phase of private ownership.

Absenteeism of a more significant sort is that which occurs when landlords of farms in one section of the country, say the Corn Belt, take up their residence in California, Florida, or in one of the larger cities of the East. But the farms and tenants do not always suffer from the absenteeism of these landlords. Their tenants may be their own sons or daughters; children who may reasonably expect to inherit at some future time the property which helps support the distant parents. Or, if their tenants are not children of the owners, they may be supervised by the owner's son or brother who happens to live near the rented farm.

Areas and Methods of Study

To study the extent to which farms are owned by absentees, it is necessary to be somewhat arbitrary in deciding

whether any particular farm is or is not so owned. It is convenient to draw the line between farms owned by absentees and farms not so owned according to the place of residence of the landlord in relation to the location of the farm. Is the landlord resident in the same county? Is he resident in the same county or in any of the adjoining counties? Is he resident in the same state? Is he resident in the same state or in any of the adjoining states, or is his residence in a distant state or foreign country?

The Bureau of the Census, in its study of the ownership of rented farms in 1900, distinguished rented farms owned by residents of the same county from rented farms owned by out-of-the-county residents. It further distinguished between the rented farms owned by residents of the state and rented farms owned by out-of-the-state residents.

The 1900 study is the only study that has ever been made of the ownership of rented farms in the entire country. The figures published in connection with that study are invaluable for comparison with those of later years.

In 1920 the agricultural schedules of the United States Census inquired the name and address of landlords owning tenant farms, and on the basis of the replies study was made of the rented farms in 184 counties.¹ While this may appear a small sample out of 3,000 counties, yet the counties selected were those containing large numbers of rented farms and were located in 24 representative states. All in all, the study covered about 250,000 rented

farms, or about a tenth of the total number of rented farms in the United States.

Of the two political units, county and state, the county is the more useful for general purposes in studying the extent to which rented farms are owned by absentees. The states vary considerably in size and in their facilities for transportation and communication.

In using the county figures, a point to keep in mind is that the post-office address of the landlord has been considered in relation to the county in which the rented land is located. However, a landlord may live in another county from the one in which his farm lies, and yet be close to his farm if his residence is just across the county line. It would scarcely be fair to regard such a landlord as an absentee. He would be more of an absentee if he retained his farm and moved his residence to a far corner of the county in which his property happened to be located. And in the case of farms near state boundaries, a landlord resident just across the state line might be less an absentee than he would if he lived in the same county as the farm but in a far corner of it.

It does not necessarily follow that a landlord whose post-office address is in another county, or even in an adjoining state, does not live in the county in which his farm lies. This paradox may arise in the case of a landlord living near a county or state line but getting mail from a town just over the line. On the contrary, a landlord who gets mail from a town in the county in which his farm is located may not live in that county or state, but just over the line. However, cases such as these are exceptional, and for practical purposes they may be overlooked, as variations of such a character tend to offset one another.

¹ The 1920 study was made by the Division of Land Economics, in the Bureau of Agricultural Economics, United States Department of Agriculture, with the permission of the Bureau of the Census, Department of Commerce.

Partly in order to allow for such circumstances a further classification was made to determine the proportion of rented farms owned in 1920 by landlords resident in the county and adjoining counties and also the proportion owned by landlords resident in the state and adjoining states. In view of present-day facilities for transportation and communication a landlord resident in the county or in any county adjoining the county containing his rented farm can hardly be regarded as an absentee.

*Trend of Absentee Ownership,
1900-1920*

In the 20 years between 1900 and 1920 a slight decrease seems to have occurred in the proportion of rented farms owned by absentees, counting as absentee-owned farms those owned by landlords resident out of the county. In 1900, 78.8% of the rented farms were owned by persons resident in the same county, and 94.7% were owned by persons resident in the same state. In 1920, of the rented farms in 184 counties scattered in 24 states, 80.4% were owned by persons resident in the county

and 94.9% were owned by persons resident in the state.

In 1920 the tenant farms owned by landlords resident in the same or in adjoining counties were 92.5% of the farms studied. At that time only 2.1% of the farms studied were held by persons not resident in the state or in adjoining states.

Absenteeism was more general both in 1900 and in 1920 in northern and western states than in the South and more general in the more western of the north central states than in those to the East.

An insignificant proportion of the farms in the 184 counties studied in 1920 were the property of owners resident in foreign countries. In 1900 the farms reported with owners residing in foreign countries, omitting owners residing abroad but maintaining legal residence in the United States, numbered 1,097. They had a total acreage of 224,505, and a value (in 1900) of between 5 and 6 millions of dollars. Of these farms 367 were owned by residents of Canada and 308 by residents of the British Isles. Only 3 foreign owners had as many as 20 farms.

TABLE I. HOLDINGS IN 1900 OF LANDLORDS RESIDENT IN THE SAME COUNTY AND STATE AS THEIR RENTED FARMS, COMPARED IN SIZE AND VALUE PER ACRE WITH HOLDINGS OF LANDLORDS OF MORE REMOTE RESIDENCE

GEOGRAPHIC DIVISION	AVERAGE RENTED AREA HELD BY LANDLORDS RESIDENT			VALUE PER ACRE OF RENTED AREA HELD BY LANDLORDS RESIDENT		
	In Same State		Not in Same State	In Same State		Not in Same State
	Same County	Other Counties		Same County	Other Counties	
	Acres	Acres	Acres	Dollars	Dollars	Dollars
North Atlantic.....	104	111	112	45	42	35
North Central.....	120	142	183	39	33	26
South Atlantic.....	68	97	133	12	9	13
South Central.....	59	100	136	13	9	8
Western.....	294	480	311	21	17	17
United States.....	85	126	159	26	21	19

In 1920, 558,580 farmers owned part of the land they farmed and rented the rest from other landowners. In a sense these farmers were owner-farmers but in another sense they were tenants of the men from whom they rented. Approximately half of these part-owner farmers were in the north central states. Study of nearly 8,000 tracts rented to part owners in the north central states indicates that 68% were owned by persons resident in the same county as the land and 85% by persons resident either in adjoining counties or in the same county. There was less absenteeism than this with respect to farms operated by tenants who owned none of the land which they farmed, the figures for 1920 for counties studied in the north central states showing 74% of such tracts owned by landlords resident in the same county, and 89% by landlords resident in the same or in adjoining counties.

Study of the ownership of upwards of 5,000 manager-operated farms revealed that 73% were owned by landlords resident in the county and 87% by landlords resident either in the same county or in adjoining counties.

Absentee Ownership of Rented Farms, Acreages and Values Compared

Most of the discussion of absenteeism in this paper is in terms of rented farms. Farms vary considerably in size and value, however, and it appears from a study of ownership of rented farm property in 1900 (Table I) that landlords who lived relatively far from their farms had holdings of rented farm property greater in size but less in per acre value than landlords who lived near their farms. It is, therefore, of interest to compare the percentage of rented farms owned by landlords not

resident in the county or in any of the adjoining counties with the percentage of the rented acres and the percentage of the value of land and buildings owned by these landlords. The amount of absenteeism is perhaps minimized where the number of farms is made the basis of discussion, whereas more emphasis could be given to the amount of absenteeism if the discussion were centered around acres or values.

Of the rented farm property studied in 184 counties, 7.5% of the farms, 12.4% of the acres, and 11.2% of the values represented were owned in 1920 by landlords resident neither in the county nor in any of the counties adjoining the county containing the property. From this we may infer that the farms of the absentee class of owners, in line with conditions in 1900, were somewhat larger but less in value per acre in 1920 than the farms of nearby owners. By subgrouping the 184 counties to distinguish conditions in the different sections of the country, the same tendencies seem to hold throughout (Table II).

Any close comparison of the 1900 and the 1920 studies of absenteeism

TABLE II. EXTENT TO WHICH RENTED FARM PROPERTY WAS OWNED BY LANDLORDS NOT RESIDENT IN THE COUNTY OR IN ANY OF THE ADJOINING COUNTIES. SELECTED AREAS, 1920

AREAS OF STUDY		RENTED FARM PROPERTY OWNED BY ABSENTEES		
Location	Number of Coun's	Farms	Acreage	Value of Land and Buildings
North Eastern.....	19	4.8%	5.7%	5.1%
Chesapeake-Delaware Peninsula.....	14	9.1	12.4	11.8
North Central.....	85	10.8	14.4	12.1
South Eastern.....	32	2.8	4.4	3.6
East South Central.....	12	5.6	6.8	6.0
West South Central.....	13	10.2	14.8	11.1
California.....	9	15.6	21.2	18.7
All areas.....	184	7.5%	12.4%	11.2%

TABLE III. COMPARISON OF EXTENT TO WHICH RENTED FARM PROPERTY WAS OWNED BY LANDLORDS NOT RESIDENT IN THE COUNTY IN 1900, WITH FIGURES FOR SELECTED COUNTIES IN 1920*

GEOGRAPHIC DIVISION	RENTED FARM PROPERTY OWNED BY ABSENTEES					
	Farms		Acreage		Value of Land and Buildings	
	1900	1920*	1900	1920*	1900	1920*
North Atlantic.....	20%	14%	21%	16%	19%	14%
North Central.....	26	26	31	30	26	28
South Atlantic.....	20	17	27	22	24	20
South Central.....	18	16	29	22	22	17
Western.....	33	34	42	45	37	40
United States.....	21	20	30	27	25	26

* The number of counties in the several geographic divisions used to obtain the 1920 figures is limited to 19 for the north Atlantic, 85 for the north central, 35 for the south Atlantic, 36 for the south central, and 9 for the western division.

with a view to determining whether absenteeism is or is not increasing is likely to lead to somewhat questionable conclusions. The 1920 figures pertain only to 184 counties, whereas the 1900 figures cover all the counties of the country. However, it seems worth while to attempt the comparison in a limited way. Table III divides the country into five geographic divisions and gives the percentage of rented farms, rented farm acres, and value of rented farm land and buildings owned in 1900 by landlords resident out of the county, with the corresponding figures for limited numbers of counties in the same geographic divisions in 1920. In the north central division 85 counties were averaged to obtain the 1920 figures and these show landlords not resident in the county to be the owners of 26% of the rented farms, 30% of the rented farm acreage, and 28% of the value of the rented farm real estate. These figures correspond very closely with the results of the 1900 study. The failure of the 1900 and 1920 figures for the other divisions of the country to correspond as well as the north central figures may be attributed

more to the inadequacy of the 1920 examples than to any change in the extent of absenteeism during the 20-year interval.

As a means of simplifying comparison between the various states as to the amount of property owned by landlords resident out of the county, the states have been arranged in eight groups of six each and numbers from one to eight given each state to indicate in which of the eight groups it belongs. This method makes it feasible to compare the states with a fair degree of readiness with respect to three aspects of absenteeism, namely ownership of rented farms, ownership of rented acres, and ownership of the value of rented farm real estate. States which appear in any one of the eight groups on account of the importance of absenteeism with respect to ownership of rented farms usually appear also in the same or in some nearby group with respect to the ownership of rented acres or value of rented farm property. Illinois, for example, is one of the six states taking fourth rank with respect to the percentage of its rented farms owned by residents out of the county.

It is also one of the six states taking fifth rank with respect to the percentage of its rented acres owned by residents out of the country, and it is in the fifth group with respect to the percentage of the value of its rented farm property held by owners resident out of the county (Table IV). The comparisons are based on the 1900 census.

Comparison of the 1900 statistics for the various states shows that California, Colorado, South Dakota, and Nebraska rank highest in prevalence of absenteeism. They rank with the six states showing the most absenteeism when measured by the percentage of rented farms owned by landlords resident out of the county, and they also rank with the six states with the most absenteeism in terms of rented acres and value of rented farm real estate.

Among other states which deserve attention because of the importance of absenteeism as shown by the present comparison, Idaho, North Dakota, Kansas, Minnesota, Washington, Maine, and West Virginia should be mentioned. Among states which had the least absenteeism may be mentioned Rhode Island, New York, Pennsylvania, Wisconsin, North Carolina, South Carolina, Kentucky, and Tennessee. Utah, the state which in 1900 apparently had the least absenteeism, measured in percentage of rented farms owned by landlords resident out of the county, apparently had the most absenteeism measured in percentage of rented acres owned by landlords resident out of the county. This inconsistency results from the fact that the rented farms owned by out-of-county

TABLE IV. PERCENTAGE OF RENTED FARM PROPERTY IN EACH STATE OWNED IN 1900 BY RESIDENTS OUT OF COUNTY

LOCATION	PROPERTY DESCRIPTION			Relative Position among the States Arranged in 8 Equal Groups*	LOCATION	PROPERTY DESCRIPTION			Relative Position among the States Arranged in 8 Equal Groups*
	Farms	Acres	Value			Farms	Acres	Value	
Maine.....	20.1%	32.0%	30.7%	2-3-2	West Virginia.....	25.6%	37.5%	31.5%	4-2-2
New Hampshire.....	20.5	32.4	29.2	2-3-3	North Carolina.....	16.8	23.5	20.5	8-6-7
Vermont.....	20.9	20.5	18.2	5-8-8	South Carolina.....	10.2	23.1	19.1	8-7-8
Massachusetts.....	25.7	27.5	27.7	3-5-3	Georgia.....	21.3	26.9	23.9	5-5-5
Rhode Island.....	17.8	22.4	15.1	7-7-8	Florida.....	21.4	28.2	29.6	5-4-3
Connecticut.....	22.1	24.0	21.7	5-6-6	Kentucky.....	15.5	23.4	20.1	8-7-7
New York.....	19.1	19.8	19.5	7-8-8	Tennessee.....	15.8	22.0	18.8	8-7-8
New Jersey.....	25.9	26.8	25.6	3-5-4	Alabama.....	19.4	23.1	21.8	6-7-6
Pennsylvania.....	18.9	20.3	17.5	7-8-8	Mississippi.....	19.8	23.1	23.0	6-7-5
Ohio.....	22.3	23.7	21.7	5-6-6	Arkansas.....	19.1	25.3	23.4	6-6-5
Indiana.....	22.7	27.2	23.9	4-5-5	Louisiana.....	18.2	24.3	22.9	7-6-6
Illinois.....	23.2	26.0	24.6	4-5-5	Oklahoma.....	17.6	36.6	29.7	7-2-2
Michigan.....	24.1	24.7	20.8	4-6-7	Texas.....	18.1	34.6	22.6	7-2-6
Wisconsin.....	20.6	21.6	19.9	6-8-7	Montana.....	25.0	11.1	23.4	4-8-5
Minnesota.....	31.3	34.6	31.7	2-3-2	Idaho.....	33.2	36.0	35.0	1-2-1
Iowa.....	27.4	31.1	29.0	3-3-3	Wyoming.....	31.8	12.5	22.9	2-8-6
Missouri.....	24.1	30.1	24.3	4-4-4	Colorado.....	36.3	41.1	35.6	1-1-1
North Dakota.....	32.3	34.5	33.7	1-3-1	New Mexico.....	19.4	36.6	30.3	6-2-2
South Dakota.....	41.0	43.9	40.2	1-1-1	Arizona.....	17.5	26.0	25.0	8-5-4
Nebraska.....	34.2	40.8	33.7	1-1-1	Utah.....	14.0	76.5	19.6	8-1-7
Kansas.....	32.3	38.1	33.1	2-1-2	Nevada.....	28.2	29.0	28.4	3-4-3
Delaware.....	20.8	33.9	21.1	6-3-7	Washington.....	32.1	37.5	29.2	2-5-3
Maryland.....	26.6	30.4	26.5	3-4-4	Oregon.....	28.7	29.4	25.7	3-4-4
Virginia.....	21.4	30.7	26.9	5-4-4	California.....	36.6	49.9	41.6	1-1-1

* With regard to its rank relative to other states in the percentages of rented farms, rented acres, and value of rented farm property owned by persons resident out of county, each state has been given a number from 1 to 8. The lower, first rank, numbers designate the states with the largest percentages, and the highest numbers designate the low rank states, those with the lowest percentages. The first number given refers to the position of the state relative to other states in percentage of rented farms owned by out-of-county residents, the second number refers to the rank of the state relative to the percentage of rented acres owned by out-of-county residents, and the third number refers to its relative rank in the percentage of rented farm values owned by out-of-county residents. In each of the three categories each of the 8 numbers appears 6 times, thus providing three numbers for each of the 48 states.

† Indian Territory and Oklahoma Territory have been grouped under Oklahoma.

TABLE V. PERCENTAGE OF RENTED FARMS IN SELECTED AREAS HELD IN 1920 BY ABSENTEE OWNERS

STATE	COUNTIES STUDIED		PERCENTAGE OF RENTED FARMS OWNED BY RESIDENTS		
	Number	Location in States	Out of the County	Out of the County and the Adjoining Counties	Out of the State
New York.....	5	Western	15.5%	5.0%	2.5%
New York and New Jersey.....	5	Scattered	17.2	9.7	6.5
Pennsylvania.....	9	Eastern	12.3	3.7	2.0
Ohio.....	11	Western	20.9	4.4	4.4
Illinois.....	11	Northern	24.8	8.5	5.2
Illinois.....	10	Central	25.6	11.4	6.4
Michigan.....	8	Southern	22.0	7.0	6.4
Wisconsin.....	6	Southern	17.6	4.5	3.3
Iowa.....	7	Northwestern	32.5	14.6	9.2
Iowa.....	11	Central	26.5	9.6	5.8
North and South Dakota.....	11	Eastern	38.4	25.7	25.1
Kansas.....	10	Central	29.7	14.0	8.0
Delaware.....	3	Entire State	20.3	8.5	11.2
Maryland.....	9	Eastern	25.7	12.2	12.2
Virginia.....	2	Eastern	6.3	3.6	2.4
Virginia and North Carolina.....	9	Central	18.9	3.1	6.3
North Carolina and South Carolina.....	6	Central	12.1	2.4	5.9
Georgia.....	6	North Central	19.0	3.5	0.6
Kentucky.....	3	Western	12.5	1.8	2.2
Kentucky.....	8	Central	17.2	2.3	1.0
Alabama.....	3	Central	17.8	6.2	1.6
Mississippi.....	5	Western	12.6	5.7	3.0
Louisiana.....	4	Central	17.0	1.8	1.2
Oklahoma.....	4	South Central	20.3	8.1	6.8
Oklahoma.....	5	Southwestern	35.8	25.3	17.0
Texas.....	4	Central	13.1	5.4	0.8
California.....	9	Central	34.1	15.6	14.0
24 States.....	184	As above	19.6%	7.5%	5.1%

residents included some with very large acreages of low-value land, a fact that suggests itself from the relative rank of the state with respect to the percentage of rented farm real estate values owned by landlords resident out of the county.

Differences in Absenteeism Shown by a Study of Conditions in 1920

The 184 counties in which absentee ownership in 1920 was studied may be thrown into 27 different groups of

from 2 to 11 counties each, the agriculture of the counties of each group being somewhat similar (Table V). Absenteeism in these groups was studied with regard to the percentage of rented farms owned by landlords resident out of the county, the percentage of rented farms owned by landlords resident out of the county and the adjoining counties, and the percentage of rented farms owned by landlords resident out of the state. By each of these measures the most absenteeism appears to have been

associated with the rented farms of the 11 counties of the North and South Dakota group, followed closely by the group of 5 counties studied in southwestern Oklahoma and by the group of 9 California counties studied. Among the other areas worth noting because of the considerable proportion of rented farms owned by absentees may be mentioned northwestern Iowa, central Kansas, and the eastern shore of Maryland. Measured by the percentage of rented farms owned by landlords resident out of county and adjoining counties, the least absenteeism is shown by the group of four Louisiana rice-growing counties and by the group of three tobacco-growing counties in western Kentucky. Among the other areas worth noting because of the small proportion of rented farms owned by absentees may be mentioned the tobacco-growing area central along the boundary of Virginia and North Carolina, the area of blue-grass counties in Kentucky, the cotton-growing area central along the boundary of North and South Carolina, and the Pennsylvania, Ohio, Wisconsin, Georgia, and eastern Virginia areas.

Local Differences in Absenteeism in 1920

In considering the question of absenteeism it is important to study local differences, as most states are so large that serious local problems may be almost totally concealed in the state average. Landlords who have many farms usually own in but one or few communities, but in the communities in which they own the methods by which they handle their land may have an important bearing on the social and economic life of the people resident there. It is possible to present herewith for 184 representative counties a

grouping based on the percentage of rented farms owned in 1920 by landlords resident neither in the county nor in any one of the adjoining counties. The figures reveal considerable difference between counties, and it is highly probable that even greater differences would be shown between townships and smaller localities in the extent of absenteeism, if the figures necessary to make such comparisons were available.

In 23 of the 184 counties studied, over a fifth of the rented farms were owned by landlords resident neither in the county nor in any one of the adjoining counties. In 3 counties—Dick-

TABLE VI. EXTENT TO WHICH RENTED FARMS IN 184 COUNTIES WERE OWNED IN 1920 BY LANDLORDS RESIDENT NEITHER IN THE COUNTY NOR IN ANY ONE OF THE ADJOINING COUNTIES

STATE	COUNTIES STUDIED	PERCENTAGE OF RENTED FARMS OWNED BY THE ABSENTEE GROUP			
		1 to 5	6 to 10	11 to 20	21 or More
		Count's	Count's	Count's	Count's
New York.....	8	4	3	0	1
New Jersey.....	2	0	0	2	0
Pennsylvania.....	9	7	1	1	0
Ohio.....	11	6	4	1	0
Illinois.....	21	0	15	6	0
Michigan.....	8	0	7	1	0
Wisconsin.....	6	5	0	1	0
Iowa.....	18	0	12	4	2
North Dakota.....	10	0	0	1	9
South Dakota.....	1	0	0	0	1
Kansas.....	10	0	2	6	2
Delaware.....	3	0	3	0	0
Maryland.....	9	0	4	5	0
Virginia.....	6	5	1	0	0
North Carolina.....	9	9	0	0	0
South Carolina.....	2	2	0	0	0
Georgia.....	6	5	1	0	0
Kentucky.....	11	11	0	0	0
Alabama.....	3	1	2	0	0
Mississippi.....	5	2	3	0	0
Louisiana.....	4	3	1	0	0
Oklahoma.....	9	0	4	1	4
Texas.....	4	2	2	0	0
California.....	9	2	0	3	4
24 States.....	184	64	65	32	23

TABLE VII. TENANT FARMS OWNED BY LANDLORDS RESIDENT WITHIN THREE MILES OF THE FARMERS, IN REPRESENTATIVE GROUPS OF COUNTIES, 1920

STATES CONTAINING COUNTIES STUDIED	COUNTIES STUDIED	TENANT FARMS STUDIED	TENANT FARMS WITHIN THREE MILES OF THE LANDLORD'S RESIDENCE			
			Average of all farms	Tenant Farms of Landlords Reporting Their Tenants to Number		
				1	2, 3, or 4	5 or More
New York, New Jersey, Pennsylvania, Delaware, Maryland.....	31	5,129	62%	65%	62%	55%
Ohio, Illinois, Michigan, Wisconsin, Iowa, North Dakota, South Dakota, Kansas	85	24,367	42	48	43	29
Virginia, North Carolina, South Carolina, Georgia, Kentucky.....	34	9,494	70	79	78	62
Alabama, Mississippi, Louisiana.....	12	9,060	64	73	74	62
Oklahoma, Texas, California.....	22	6,379	51	52	52	40
All areas.....	184	54,429	53%	54%	53%	52%

inson County, Iowa, Kiowa County, Kansas, and Madera County, California—as many as three-eighths of the rented farms were owned by landlords resident neither in the county nor in any of the adjoining counties. The 23 counties in which over a fifth of the rented farms were owned by such absentees included 10 of the 11 Dakota counties studied, 4 of the 9 Oklahoma counties, 4 of the 9 in California, the others being in Kansas, Iowa, and New York (Table VI).

Since county figures are used so generally throughout this article it may not be out of place to consider the extent to which farm landlords own in more than one county or state. Obviously if a landlord who lives out of the county is judged to be an absentee, then all landlords who own rented farms in more than one county would be classed as absentees. Of a total of over 20,000 landlords who answered a ques-

tionnaire asking the number of counties and states in which they owned land, 12% reported ownership in more than one county and 3% reported ownership in more than one state. Not all landlords who reported land holdings in more than one county owned rented farms in more than one county. Most of the landlords had but one tenant, yet 4% of those who had but one tenant reported themselves owners in more than one county and 1% owners in more than one state. The 1920 index of ownership in 184 counties indicated that about 3% of the rented farms were owned by persons owning rented farms in more than one of the 184 counties.

Proportion of Rented Farms Owned by Residents within Three Miles

In the questionnaire sent to landlords in the 1920 study information was obtained as to the number of tenant farms

owned by the landlords reporting which were within three miles of their residence. To simplify comparison the replies have been brought together into a few geographic groups and distinction made as to the size of the landlords' holdings of rented farms, for it is reasonable to assume that the more farms a landlord has, the smaller the number which are likely to be within three miles of his residence (Table VII).

The replies indicate that 42% of the tenant farms of the north central states are within three miles of the residence of the owner as compared with 62% of the tenant farms of certain northeastern states, and 64% or more of the tenant farms of certain southern states. Of all the farms owned by the landlords replying to the question, 53% were within three miles of the residence of the owner. There is a consistent decline in the percentage of farms within three miles as one compares farms of owners with one tenant with farms of owners with two, three, or four tenants, and farms of owners with two, three, or four tenants with farms of owners with five or more tenants.

The close association of southern landlords with their land is indicated by the fact that 62% of the rented farms of southern landlords with five or more rented farms were reported to be within three miles of the owner's residence.

Extent to Which Farm Landlords Reside on Farms

Replies of landlords show important differences between different parts of the country with respect to living or not living on farms. About two-thirds of the landlords who lived in the South lived on farms, whereas only a third of the landlords reporting from the Corn

Belt states and something more than a third of those reporting from states along the northeastern seaboard lived on farms. Grouping the landlords who reported from the Great Plains states together, over half reported their residence to be on a farm, but this figure is something of a mean between variant conditions in the North and South, for less than half of the Dakota and Kansas landlords lived on farms, while two-thirds of the Oklahoma and Texas landlords lived on farms (Table VIII).

Cash Versus Share Rent as Affecting Absenteeism

In 1920, 75.5% of the farm tenants of known status paid share rent. Whatever the facts concerning the distance

TABLE VIII. FARM LANDLORDS RESIDENT ON FARMS, IN TOWNS OF LESS THAN 5,000, AND IN TOWNS OR CITIES OF 5,000 AND MORE, IN 1920

STATES CONTAINING THE COUNTIES STUDIED	LANDLORDS OF RENTED FARMS			
	Total Number Studied	RESIDENCE		
		On a Farm	Served by a Post-Office, City or Town with a Population*	
			Less than 5,000	5,000 or More
New York, New Jersey, Pennsylvania, Delaware, Maryland.....	3,625	37%	84%	16%
Ohio, Illinois, Michigan, Wisconsin, Iowa.....	11,302	33	75	25
North Dakota, South Dakota, Kansas, Oklahoma, Texas, California.....	5,473	53	65	35
Virginia, North Carolina, South Carolina, Georgia, Kentucky, Alabama, Mississippi, Louisiana.....	3,862	67	92	8
Totals.....	24,262	43%	77%	23%

*Landlords resident on a farm are included under those served by a post-office in city or town of less than 5,000.

TABLE IX. EXTENT OF OWNERSHIP OF CASH- AND OF SHARE-RENTED FARMS BY PERSONS NOT RESIDENT IN THE SAME COUNTY AS THE FARMS, 1900

State	Cash-Rented Farms Absentee-Owned	Share-Rented Farms Absentee-Owned	State	Cash-Rented Farms Absentee-Owned	Share-Rented Farms Absentee-Owned
Maine.....	31%	23%	West Virginia.....	34%	21%
New Hampshire.....	32	21	North Carolina.....	24	15
Vermont.....	25	17	South Carolina.....	18	13
Massachusetts.....	27	19	Georgia.....	26	18
Rhode Island.....	18	13	Florida.....	23	17
Connecticut.....	24	15	Kentucky.....	23	13
New York.....	24	16	Tennessee.....	21	13
New Jersey.....	31	20	Alabama.....	23	15
Pennsylvania.....	24	16	Mississippi.....	20	19
Ohio.....	27	20	Arkansas.....	25	16
Indiana.....	28	21	Louisiana.....	20	17
Illinois.....	25	22	Oklahoma.....	28	13
Michigan.....	29	22	Texas.....	25	17
Wisconsin.....	24	18	Montana.....	30	20
Minnesota.....	35	30	Idaho.....	38	32
Iowa.....	29	25	Wyoming.....	36	29
Missouri.....	28	22	Colorado.....	44	32
North Dakota.....	36	32	New Mexico.....	27	17
South Dakota.....	45	40	Arizona.....	24	8
Nebraska.....	36	33	Utah.....	25	10
Kansas.....	39	30	Nevada.....	32	21
Delaware.....	24	21	Washington.....	36	28
Maryland.....	32	25	Oregon.....	34	25
Virginia.....	28	18	California.....	36	38

at which farm landlords live from their farms, the fact that so large a proportion of farms are owned by landlords who share the receipts and risks with their tenants suggests the existence of a certain community of interest between landlords and their tenants that would not be likely to exist if, say, 90% of the rented farms were leased on a cash basis.

When the census of 1920 was taken, the tenants who paid cash, standing or unspecified rents were 10.1% of the farmers of the country. These tenants occupied farms the owners of which, if not absentees, at least rented in a way that made their presence in the vicinity of their farms unnecessary. The other 89.9% of the farms were worked by the

owners themselves, through managers or through tenants on shares, methods that imply residence by the owner on the land or the giving of a degree of supervision such as would necessitate the employment of an agent if a landlord did not have implicit faith in his tenant or manager or live near enough personally to supervise him.

Beginning in 1880 when the Bureau of the Census first secured information on the tenure of farm occupants, the census has published figures showing the number of cash- and the number of share-rented farms. In the earlier reports, those for 1880, 1890, and 1900, rented farms on which the rent was not specified were included with farms rented for cash. Except in the

TABLE X. COMPARISON BETWEEN LANDLORDS RESIDENT IN THE COUNTY AND LANDLORDS RESIDENT OUT OF STATE IN THE EXTENT TO WHICH THEY RENTED THEIR FARMS FOR CASH IN 1900

LOCATION OF RENTED FARMS—STATE	FARMS RENTED FOR CASH		LOCATION OF RENTED FARMS—STATE	FARMS RENTED FOR CASH	
	Farms of Landlords Resident			Farms of Landlords Resident	
	In County	Out of State		In County	Out of State
Maine	71%	78%	West Virginia	32%	58%
New Hampshire	72	83	North Carolina	20	38
Vermont	47	64	South Carolina	58	72
Massachusetts	85	88	Georgia	41	56
Rhode Island	94	94	Florida	71	85
Connecticut	77	89	Kentucky	20	43
New York	42	63	Tennessee	29	44
New Jersey	46	68	Alabama	55	68
Pennsylvania	38	56	Mississippi	51	51
Ohio	29	47	Arkansas	31	54
Indiana	19	30	Louisiana	42	57
Illinois	36	44	Oklahoma	25	25
Michigan	27	42	Texas	13	29
Wisconsin	42	58	Montana	44	61
Minnesota	17	21	Idaho	22	27
Iowa	54	62	Wyoming	43	54
Missouri	34	45	Colorado	33	50
North Dakota	13	16	New Mexico	19	40
South Dakota	14	15	Arizona	55	77
Nebraska	24	27	Utah	24	58
Kansas	26	36	Nevada	61	54
Delaware	15	20	Washington	44	53
Maryland	23	35	Oregon	37	59
Virginia	29	47	California	54	62

1920 report there has been no distinction made by the census between farms rented for standing rent and farms rented for cash rent.

Considering together the farms rented for cash rent, the farms rented for standing rent, and the rented farms for which the rent was not specified, we have a figure which is fairly comparable for the various censuses. There was an upward trend in the extent to which tenant farms were rented for cash (cash, standing, and unspecified rent) between 1880 and 1890 and again between 1890 and 1900, with a downward trend between 1900 and 1910 and

again between 1910 and 1920, bringing the 1920 figure to the lowest it had been up to that time. The percentage of tenant farms rented for cash and unspecified rents was 31 in 1880, 35 in 1890, 37 in 1900, 35 in 1910, and 26 in 1920.

Cash renting requires considerably less supervision and risk on the part of the landlord than share renting and cash renting is generally best fitted to the requirements of the absentee landlord. However, the fact that 48% of the Iowa tenant farms of specified tenure were rented for cash in 1920 as compared with 6% of the tenant farms

of North Dakota is by no means a measure of the extent to which the tenant farms of each state are owned by absentees. Such statistics as are available seem to indicate that there is even less absenteeism in Iowa than there is in North Dakota. In 1900 about 27% of the rented farms of Iowa and 32% of the rented farms of North Dakota were owned by landlords resident out of the county. In 1920 about 28% of the rented farms in 18 Iowa counties were owned by landlords resident out of the county, as compared with 40% of the rented farms in a group of 10 North Dakota counties. In short, while cash renting is favorable to absenteeism it is probably rather futile to attempt to correlate absenteeism with percentage of tenant farms rented for cash for the purpose of comparing the various states and divisions of the country. Local custom and preferences for one form of rent as compared with another have too much to do with determining the proportion of farms rented in any given manner.

Of the two classes of landlords, those renting their farms for cash and those renting on shares, it is safe to assume that those renting for cash are the least interested in their farms and tenants. Figures made available in connection with the census of 1900 show that they are also more likely to be absentees as measured by the distance they live from their farms. Landlords resident out of the county containing their rented farms owned

19% of the share-rented farms, whereas they owned 25% of the cash-rented farms in 1900. At the time, owners resident out of the state had 4.5% of the share- as compared with 6.7% of the cash-rented farms. In every state except California a larger proportion of the cash- than of the share-rented farms were owned by landlords resident out of the county. In some states it is apparently difficult for a landlord resident out of the county to rent his land successfully on shares. This accounts for much of the difference in the percentage of cash- and of share-rented farms owned by landlords resident out of the county. In Kansas, for instance, out-of-the-county residents owned 39% of the cash- as compared with 30% of the share-rented farms; for Montana the corresponding percentages were 30 and 20 respectively, and for North Carolina they were 24 and 15 respectively.

On the other hand, in some states it is evidently as common for absentees to rent on shares as for cash, perhaps because tenants are more reliable, possibly because share renting pays enough to make it worth while to employ an agent. Thus, where Iowa landlords resident out of the county owned 25% of the share-rented farms, they owned only a little larger proportion, 29%, of the cash-rented farms, and in Illinois a similar group of landlords owned 22% of the share- and 25% of the cash-rented farms (Tables IX and X).

A FAIR RETURN FOR PUBLIC UTILITIES'

By JOHN H. BICKLEY

IN THE application of the principle that a public utility is entitled to a fair return on the fair value of its property used in public service, attention has been given primarily to the latter element. Many theories have been developed as to what constitutes value for rate purposes. In proceedings before commissions and courts, volumes of testimony and exhibits are presented on the elements which courts have declared must be considered in arriving at this factor.

Estimates of reproduction cost and studies of original cost of property are prepared in minutest detail. The items of useful property and the unit prices are made the battling grounds by opposing parties, and the reasonableness of rates is decided largely on the basis of what constitutes fair value.

This emphasis upon the rate base has been an outgrowth of the conditions under which regulation by public service commissions has developed and functioned and of the general attitude which has prevailed. It was thought at first that the base having once been determined would remain fixed. For this reason, the greatest care was to be exercised that the amount determined should be neither too high nor too low. The next stage was a sudden increase in prices and construction costs, and with it there was an effort to measure the extent to which the fluctuation in costs influenced value. This influence being a matter of opinion, it became necessary to exhaust every factor having a bearing upon value. As a result, attention has been focused upon this

issue, while other questions have been relegated to a place of secondary importance. The rate cases in which valuations have been made have led to the accumulation of masses of data on the fixed capital of the individual utility, the units of property, the prices of materials and labor at certain periods, and the original expenditures by the enterprise in building up its system. Accompanying the preparation of this body of useful information, there has been a careful recording of new installations of property and of the retirements of worn-out, obsolete, and inadequate facilities, under uniform systems of accounting prescribed by state and federal commissions. The larger utilities, on their own initiative, maintain elaborate inventories of their fixed capital.

A perfunctory examination of the decisions of public service commissions reveals that comparatively little attention has been given to what constitutes a reasonable rate of return. In dealing with fair return, testimony has been of a more general nature and hence a body of information for guidance on this subject has not been created. The various factors have not generally been weighed in detail, and allowances are frequently made as a matter of general policy. The practice of at least one commission, that of Pennsylvania, has

¹ EDITORIAL NOTE: Mr. Bickley's manuscript and that immediately following by Mr. Dozier were received by the editors at about the same time. Although the general subject treated is very similar, in each article there are differences in point of view which in the editors' opinion justified their publication in the same issue.

been to allow a flat return of 7%, without regard to times and circumstances. Others appear to have adopted the more liberal rate of 8%. Some commissions decide upon the return in dollars and conclude that it will yield a sum falling within certain limits. Others endeavor to fix a return commensurate with risk. The fixing of an immutable rate is manifestly illogical, unreasonable, and in conflict with the deliverances of the highest judicial tribunals. Whatever method is followed, there is evident a lack of data bearing upon a reasonable return and an absence of well-devised procedure for deciding what is non-confiscatory and what is fair to all parties at interest.

When the weight which attaches to small figures is seen, the necessity of a painstaking consideration of the percentage return becomes evident. On a \$100,000,000 property, an item involving \$100,000 is only one-tenth of 1% of the total. Yet, expert witnesses and attorneys will struggle for days for the exclusion or inclusion of this sum. On the other hand, in the matter of rate of return, one-tenth of 1%, or \$100,000 income, on a property of \$100,000,000, has the force of approximately \$1,400,000 of assets, if the allowed return is 7%. Nevertheless, the testimony of witnesses and the findings of commissions are usually in round sums of 6%, 7%, or 8%, and comparatively no effort is made to attain a refinement of the rate in a way that reflects its importance.

In one of the earliest and most important cases since the advent of regulation by state commissions,^{*} the United States Supreme Court enunciated the guiding doctrine on rate of return:

^{*} *Wilcox v. Consolidated Gas Company*, 212 U. S. 19 at pp. 48-49, decided January 4, 1909.

There is no particular rate of compensation which must in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon circumstances and locality; among other things, the amount of risk in the business is a most important factor, as well as the locality where the business is conducted and the rate expected and usually realized there upon investments of a somewhat similar nature with regard to the risk attending them. There may be other matters which in some cases might also be properly taken into account in determining the rate which an investor might properly expect or hope to receive and which he would be entitled to without legislative interference. The less risk, the less right to any unusual returns upon the investments. One who invests his money in a business of a somewhat hazardous character is very properly held to have the right to a larger return without legislative interference, than can be obtained from an investment in government bonds or other perfectly safe security.

In substantially every case in which the rate of return has been an issue, the same elements have been cited, usually by reference to the *Wilcox* case. A utility that is managed with a degree of efficiency that investors and consumers may expect, must be allowed a return that will attract sufficient funds, at reasonable cost, to meet its capital requirements. If the return is inadequate for the risk involved, or if the business is inefficiently operated, capital will not flow freely to the enterprise, if at all, and then only at an excessive cost. Stock issues will be almost impossible, and raising money solely by bonds and notes will impose heavy burdens, increase the risks, and create a dangerous financial structure.

Competition is the rule of the money market. The investor is constantly seeking the most favorable investment as measured by the stability and the amount of income, the security of his principal, and the possibility of gain by

enhancement in market prices. If the income and property security offered by a public utility is less than that to be found in some other industry, capital will flow toward the field of greater safety. The significance of the allowed rate of return is that it is the measure of income security and the source from which interest and dividends are paid and reserves created. A regulatory body cannot give a legal guaranty that a stipulated return will be earned; the force of public action is that under prevailing conditions the rates charged for gas, electricity, water, or any other service will not be cut to a point that will yield less than the allowed earnings.

Risk as a Measure of Fair Return

Witnesses in their testimony and attorneys in their briefs frequently say that the return must equal that earned by other industries incurring approximately the same risk. When an examination is made of testimony on this subject, it is found that witnesses usually engage in generalities and in vague statements representing opinions rather than definitely ascertained facts. Seldom are any exhibits presented showing the earnings of other enterprises subject to the same risks. It is difficult to learn from the testimony how industries having approximately the same risk were selected; whether the earnings were computed before or after deducting depreciation; what the depreciation rule and amount were; whether or not taxes, particularly those on income, were deducted; what were the operating ratios, the earnings on various classes of securities, the financial structure, and other matters of equal importance. In a comparison of this kind, it is essential to know whether the earnings were for a

group of industries or for one; if for a group, how the members were selected; if for one company, why this company was selected. Upon what are the earnings of other companies based—the value of fixed capital, the value of the property as a whole, the original cost of fixed capital, or its reproduction cost? These and other relevant questions are usually unanswered.

The principle that a utility should be allowed an amount equal to that earned by other enterprises having the same risk is not one which lends itself to a precise measurement of what the rate of return should be. The difficulties are multitudinous, and the attendant dangers to both the utility and the public are clearly and fully set forth by Mr. Justice Brandeis in the *Southwestern Bell Telephone* case.³ As a first step, there must be found an industry in which the risk is comparable, and this in turn requires a measurement of risk. The kind of risk which concerns the investor is the security of his income—that is, the assurance that it will be received regularly and without impairing the resources of the business. He is interested in the security of his principal only as a last resort. Of course, he welcomes an increase in the market price of his holdings, but such increase is of secondary interest to one who commits his funds as an investment. Risk is a question of the stability and the amount of earnings. As long as profits are sufficiently high to meet operating expenses, provide for depreciation, pay fixed charges and dividends and leave an ample balance of surplus, the investment is secure. If the volume of business is fairly uniform from year

³ *State of Missouri ex. rel. Southwestern Bell Telephone Company v. Public Service Commission et. al.*, P.U.R. 1923C, p. 212, 262 U. S. 276 at pp. 289-312.

to year and if the earnings are sufficient to meet all charges, the risk is small. A market gauge of risk is the price of a company's bonds and stocks, or, expressed in another way, the effective return on these issues. Interest is compensation for the use of funds and for risk taken. If the risk is small, interest on bonds and dividends on stock will be low when based upon the market price of the securities; and, if risk is large, interest and dividends will be comparatively high. In financial analyses, income risk is measured by the number of times fixed charges and preferred dividends are earned and by the amount earned on each share of common stock in relation to its par value.

The amount of interest, as a fixed charge, depends not only upon interest rates, but also upon the principal amount of bonds. It has been said that the current interest rate on the market price of securities is a measure of risk; but, more specifically, it is a product of earnings, and the proportion of interest-bearing securities to total capitalization. If the earnings, total capitalization, and surplus remain constant, while the percentage of bonds to total capitalization is increased, interest rates should rise, because there would be less income available for a larger volume of bonds. Vice versa, if the proportion of bonds is reduced, interest will decline. But these changes in interest cost are not proportionate to changes in the financial structure. Interest will fall as the percentage of bonds is reduced, but, after a certain point is reached, the rate of decline in interest will be less than the reduction of the bonds. This is caused by the fact that after there is a certain income security, the investor has all the protection he desires and will not pay for more.

A practical approach to the selection

of companies having the same risk would be, first, to find companies whose securities are selling at substantially the same rates of return or effective yields. Next, there must be an understanding of why the risk is the same. The points to be examined in this analysis are as follows:

1. The first set of conditions to be observed is the regularity and the amount of business (as shown by the net sales) and the earnings available for fixed charges and dividends. The significance of earnings has already been commented upon. The volume of sales of a certain company might fluctuate considerably from year to year, but the profits at a certain time might be so high that the market price of its securities would reach the same level as the securities of an enterprise having a more stable revenue. The business of a public utility, such as an electric company, is characteristically more stable than that of an iron and steel plant; and by reason of this condition alone, the yield on steel bonds and stocks will be higher unless the fluctuations in business are offset by larger earnings. A speculative condition might explain an increase in the price of securities, especially the price of common stock, and, to a lesser extent, of bonds. It is almost impossible to measure this speculative force, yet it might be of considerable importance and might vitiate any comparisons.

2. The proportion of bonds and stocks influences interest and dividend rates and is in turn controlled by the stability of business, the amount of earnings, and the operating ratio. The bonds should be small enough in quantity that, when business is poor and earnings are low, the income will be adequate to meet interest charges. It is evident that the greater the fluctuations

in income and the higher the operating ratio, the smaller should be the percentage of bonds. In a certain type of industry, one company might have a larger percentage of bonds than another, and, other things being equal, its interest rates would be higher. When an attempt is made to assign weights to the regularity of the business and the financial structure for the purpose of determining why interest is at a certain level, it is found that the dependence of the structure upon earnings makes the task very difficult, if not impracticable.

3. A third point to be considered is unit costs and operating ratios. This requires an analysis of maintenance and depreciation charges to ascertain to what extent the costs might be influenced by the standards at which the properties are kept in repair and by the liberality of depreciation charges. In addition, there must be considered relative economic advantages such as accessibility to materials and a market; also the nature of the process of production. A hydro-electric industry has a low operating ratio (in some cases 15%) because no fuel is required and because the labor force needed to operate the plant is small. On the other hand, a steam-generating plant might have a ratio of 65%, a steel industry 75%, a railroad 75%, and a woolen industry 90% to 95%.

The operating ratio of a corporation has a direct bearing upon its financial structure. It is evident that a business whose operating expenses become as high as 75% of the revenue, thus leaving only 25% for fixed charges, cannot have so high a bonded indebtedness or so high a percentage of bonds to total capitalization as a business whose ratio is 15%, or even 50%; but because a smaller amount of bonds is outstanding, the income security for the bonds of

the high-operating-ratio company might be as much as that of the low-ratio company. A hydro-electric company can be heavily bonded for two reasons; first, because its operating ratio is low; and, secondly, because substantially all its capital is mortgageable property. But, in the final analysis, this company might be no more prosperous than a steam-electric utility, a railroad, or a manufacturing company; and the risk on its bonds, as measured by the number of times the fixed charges are earned, might be no less.

When an attempt is made to compare industries on the basis of risk and to measure the forces determining risk, the comparison tends to break down because of the variable financial, operating, and general economic factors. How, then, can this method be used to determine a fair return for a particular utility? The risk is largely a result of earnings, but the earnings are produced by the rates which are the subject of controversy. Furthermore, earnings must be considered in connection with financial structure, operating ratios, turnover of capital, the nature of the property, and the regularity of business. These things are inseparably joined together. Clearly, those who testify on fair return, from the standpoint of risk, may reasonably be expected to present evidence on these elements of the problem. If commissions were to manifest an unwillingness to accept general statements which are not supported by facts and figures, to prove the assertions of witnesses and counsel, this aspect of the problem of rate regulation would be materially improved.

A Return to Attract Capital

Another method which is frequently submitted for determining fair return is

that the earnings must be sufficient to attract capital. Here, again, there is generally a dearth of convincing evidence. The substance of the testimony of witnesses is that a utility requires a certain percentage on its property in order to obtain funds. Rarely is there any discussion of the liberality of the basic valuation, and the relation between this and the outstanding securities which receive the benefit of the return. There appears to be little consideration of the means of raising funds (whether it is to be by stock issues, by bond issues, or by both in certain proportions), of the amount of capital to be raised at one time, and of the effective interest and dividend rates to be paid.

There are few large utilities that could not obtain additional funds, even though their earnings were less; but the price to be paid might restrict necessary expansion and improvements and thus react unfavorably for both the corporation and its patrons. The problem, therefore, is not so much the ability to attract capital as it is the price that the utility would have to pay for money if rates were fixed at a certain level. Every soundly financed and well-managed utility should be allowed a return that is adequate to attract additional funds in such quantity as may be required to meet the needs of an expanding business and at rates that will not tend to restrict or curtail additions and betterments or lead to a neglect of maintenance and depreciation. As a statement of principle, this will suffice, but there must be a mathematical measurement of the return in dollars and cents.

As previously explained, the cost of funds depends to some extent upon the proportion of bonds and stocks. If a company is overbonded, it may have to

pay high interest or dividend rates in order to attract capital. Should the earnings be large enough to enable the company to reduce its funded debt? This question can be answered only in the light of particular circumstances, but it suggests one of the difficulties involved in passing upon earnings by reference to the cost of funds.

It is apparent that, if a company is able to raise capital at certain effective interest and dividend rates when its earnings are at a certain point, a reduction of the earnings may have some effect, even though slight, on the cost of additional funds. The extent of the influence will depend upon the adequacy of the margins of income over fixed charges and the different classes of dividends. If large margins are being earned on bonds and stocks, a reduction of the net income will not cause any appreciable change in the market price of securities, unless there is a large speculative element in the common stock. If earnings are exorbitant and if there is a large balance of profits after paying reasonable common stock dividends, the balance will excite the cupidity of stockholders and will arouse speculation on the possibility of an increase in dividends. Consequently, the market price of the stock will advance in reaction to an opportunity for speculative gain. The normal and wholesome condition in the relative values of different classes of securities is that bonds should sell at a lower income yield than either preferred or common stock. Ordinarily this will occur, but profits are at times so high that the common stock sells at a return less than that on bonds.

A brief review of the interests and demands of present and prospective security holders of different classes, and an examination of the margins of secu-

rity which they expect, will give some indication of the earnings necessary to attract capital. The position of the bondholder must first be considered. A bondholder wants the assurance that earnings will at all times be sufficient to meet fixed charges and leave a safe margin, and that the property security will be maintained or increased by adequate repairs, depreciation, and additions or improvements out of earnings. The required amount of income security depends upon the nature of the business—for a gas or electric enterprise the net earnings should be from one and three-quarters to two times the fixed charges. These are the amounts usually stipulated in the trust indentures of open-end mortgages as a restriction on future issues of bonds. Because the interest payments to the bondholder are restricted, an increase in earnings above twice the fixed charges has a very limited influence on the market price of bonds. The price may advance, but the advance will not be proportionate to the increase in net income; and after a certain point is reached, the rise in the market price will be inappreciable. The additional earnings needed to advance the price of bonds, and thereby reduce the interest rate, can become a burden on the consumer for the benefit of the corporation. When the bondholder has all the income security he needs, and it is evident that the properties are adequately maintained, that the reserve for depreciation is sufficient, and that a portion of profits is invested in improvements, he will be unwilling to pay a higher price for bonds, or, in other words, to accept a lower interest rate on his funds. Rather than take only $4\frac{1}{2}\%$ for his money, he will invest in some other enterprise which offers sufficient protection and which pays a higher return. In view of the fact that

he is denied the opportunity of participating in a larger distribution of earnings, his speculative possibilities are at a minimum, and the forces which tend to advance the market price of his securities are limited.

The holder of preferred stock is influenced by substantially the same considerations as the bondholder. The forces which operate on bonds act upon the preferred stock in about the same measure. His rate of return being fixed, the preferred stockholder cannot hope for larger dividends. Being in an investment class, he wants the assurance that his dividends will be earned and paid. As in the case of bonds, an increase in profits will advance the market price of the stock, but this advance will take place at a declining rate. There is a point beyond which the investor finds it unprofitable to pay more for preferred shares. Like the bondholder, he will seek another investment in which the security is all he needs, but which offers a higher return.

We come, finally, to the common stock. There is no limit to the heights which may be attained by the market price of this class of stock if the supporting profits increase indefinitely. After interest and preferred dividends have been paid, the balance of income accrues to the common stockholders, to be distributed as dividends or to be retained in the business as an enhancement of their permanent interest. If earnings and the margin between net income and interest and preferred dividends are mounting, the holders of common stock are justified in expecting higher and higher dividends. If their hopes are realized, the market price of the stock will advance in a measure that will keep the effective dividend return almost constant at increasing prices. In fact, the return will tend to drop by

reason of the accumulation of greater income and property security. Even though the corporation does not increase its dividends, thereby giving the stockholders the immediate benefit of the larger profits, the common stock will advance in response to the greater security and in anticipation of larger dividends. As a result, a speculative element is injected into the common stock by the increasing profits, and a point may be reached where the stock is selling on an income basis less than that of mortgage bonds.

*Common Stock as an Investment
Rather Than a Speculation*

A significant question with respect to common stock is what percentage on par or on the issue price the stockholders can reasonably expect the consumer to provide through rates. Is there any legal or economic justification for profits and dividends in excess of a sum that will hold the stock at par, when the dividends on this amount are sufficiently above the dividends on preferred stock and the interest on bonds to reflect the difference in priority of claims and the difference in risk? There would be no possibility of confiscation if this test were met. If there is every economic assurance that dividends will be earned and paid and that there will be a safe margin for business development, the common stock will acquire more of the attributes of bonds and preferred stock and become an investment rather than a speculation. In the last analysis, all that the stockholder with the attitude of an investor can hope for is security of principal and the assurance that dividends will be received and that the company will have a safe balance of earnings for reinvestment in the business.

Speculation in the securities of a public utility is one of the most baneful influences in the utility's development; and if it is caused by rapidly increasing earnings accompanied by reasonable dividends on common stock, there is direct evidence that earnings have become excessive and that an unfair burden is being imposed upon the consuming public. Those who purchase the common stock of a financially strong and well-managed company when the stock is selling on a 4% or 5% basis, and paying 8% or 10% on par, should have little hope for a return of 8%, 9%, or 10% on their investment, because this would mean a return of as high as 20% on stock purchased at par.

All the securities, stocks as well as bonds, of a public utility should be in the investment class; and if the company is not suffering from the evils of overcapitalization or wasteful management, every public and private effort should be made to place them in this position. If this had been recognized years ago for steam railroads and as recently as two decades ago for street railways, and if it were appreciated today for electric light and power companies, the outlook for the future would be less precarious. Some of the enterprises which have recently been, and even today are, confronted by the necessity of skimping maintenance and depreciation in order to meet dividends, would be infinitely more secure if the public had been vigilant in safeguarding its interests, as investor and consumer, when the problems were arising.

In the field of generation and distribution of electric energy there is an unexcelled opportunity to save the industry and the public from the evils of exorbitant earnings and speculation. Overcapitalization has generally resulted either from excessive earnings or

from recapitalization on the basis of anticipated earnings in excess of those being realized at the time the recapitalization was effected. This reorganization of the financial structure usually accompanied a consolidation or merger of utilities. Since 1915, electric companies have been combining at an unprecedented rate, and the movement since 1922 has been particularly marked. The combinations are being made largely on the basis of reproduction costs, with large allowances for overheads and intangibles such as going value. As a result, the electric industry is capitalized, for a major part of its property, on the basis of the highest prices which have prevailed since the years of the Civil War. Combined with this is the fact that most of the property of these utilities has been recently constructed, and there is every indication that by 1930 the properties acquired and constructed during the period from 1919 to 1930 will constitute by far the larger part of the total fixed capital.

It is in the interest of all that the combinations of electric utilities should be carefully regulated and that a speculative quality in securities should not be made permanent by additional financing or by recapitalization on the basis of a speculative condition established by excessive profits. All these matters are entirely within the control of regulatory bodies and the courts. If earnings are limited to a point that reduces speculation to a minimum, and if commissions maintain constant accounting control so that emergency relief can be immediate, the future welfare of utilities will be better assured, their prosperity will be compatible with fair rates, and additional funds will be forthcoming at a reasonable cost. The difference between bonds, preferred stock, and common

stock can be made a difference almost entirely of priority of claims against income, and not a difference due to speculative gains. The bondholder will be satisfied with 5% because he has first claim against income and a pledge of property to secure his principal; the holder of preferred stock will be satisfied with 6% because he has second claim against income; and, finally, the common stockholder will take 7% because his interest is residual, but he will have the satisfaction of an extra 1% and a realization that all surplus accrues to his benefit.

The proposal has been made that the earnings of a utility should be sufficient to keep its common stock at or a little above par. This provision was embodied in the "Giant Power" legislation proposed by Governor Pinchot of Pennsylvania. It is contended that, on this basis, funds would be obtainable by stock issues at a reasonable rate and that speculative tendencies would be minimized.

A return that makes possible dividends on common stock commensurate with risk, as indicated by those securities on which the return is limited, and that leaves a balance of surplus that will tend to stabilize security values (due consideration being given to the general level of interest rates) will hold the common stock at approximately its par value. If the return were fixed in this way, there would be no possibility of a sale of common stock at the same effective yield as that on mortgage bonds, speculation would be minimized, and additional capital would be obtainable by various classes of issues at rates reflecting priority of claims against income. The rights of the utility and its owners would be fully protected without imposing a hardship upon the rate-paying public. The fact that consumers are

being required to support speculative gains for stockholders is sufficient evidence that some measure is imperative to place the stocks and bonds of public service enterprises in the investment class.

*Determination of Fair Value Not
Essential in Rate-Making*

Another advantage of this procedure, in passing upon the reasonableness of rates, would be a lessening of the importance of fair value. Fair value is not essential to a determination of reasonable rates. The object of a rate inquiry is not the finding of fair value or of fair return on this value. The question to be answered is whether or not a certain schedule of rates is reasonable and fair to the utility and the public. The formula of fair return on value has been adopted as that which has appeared to be the most practicable means of answering this question. Unfortunately for regulation, the means has overshadowed the purpose to be accomplished, and rate investigations have become a problem almost exclusively of measuring property values. The real object of passing upon rates has become of secondary interest. If, in the midst of changing prices (the condition which has concentrated attention on value), commissions had retained a clearer perspective, rate procedure today might be fundamentally different. Other than as a final test of confiscation there is no essential need for value finding. In most cases, the reasonableness of rates could be decided without this costly, tedious, unending,

and uncertain process. The immediate and equitable criterion of reasonable rates is the adequacy of earnings on investment. If rates yield a net income that will attract capital at a price that does not arrest the growth of the utility, they are above the line of confiscation.

For every utility the prudent or actual necessary investment in its properties should be ascertained. If a company is not overcapitalized—that is, if its net capitalization (bonds, stocks, and surplus less the sum of securities held as an investment and non-utility capital) is substantially equal to the prudent investment—the rates for service should be enough to make the stocks and bonds an attractive investment. The actual necessary cost having been determined, it would stand for all time, to be changed only by additions and betterments to, and retirements of, property—amounts which can be ascertained by an examination of accounts. If rates are sufficient to yield a return that will make possible expansion at a reasonable cost, there is no confiscation of property, and public rights will be safeguarded. This does not mean that prudent investment would be made the equivalent of fair value, but that it would be a measure of proper capitalization and a basis on which funds could be attracted to the enterprise. As has been so convincingly set forth by Mr. Justice Brandeis, a return is constitutionally compensatory if it allows to the utility the opportunity to earn its operating expenses, the capital charges on securities, and enough to attract capital.

REASONABLE RATE OF RETURN IN PUBLIC UTILITY CASES

By HOWARD D. DOZIER

THE articles by Professor Bonbright and Judge Ransom in recent numbers of the JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS lead one to inquire why so much attention has been devoted to fair value and so little to the rate of return.¹

In a recent case in which the writer testified on reasonable rate of return, the rate base found by one of the engineers was approximately \$8,000,000 and by another about \$6,000,000.² Weeks were spent in combing through the almost innumerable items entering into the cost of reproduction new less depreciation. An error of \$125,000 was discovered, the detecting of which was worth the time spent.

In an ordinary rate case, however, such a small item as $\frac{1}{4}$ of 1% in the rate of return usually receives no consideration; $\frac{1}{2}$ of 1% but little. At least 1% seems necessary in order to command attention. In the case mentioned above, $\frac{1}{4}$ of 1% of the rate base claimed by the respondent, capitalized at 8%, is the equivalent of \$250,000 in the value of the property. One hundred and twenty-five thousand dollars looms large; $\frac{1}{4}$ of 1% looks small. A

microbe may sometimes be mightier than a mountain, though less visible.

The argument precipitated by the *Smyth v. Ames* decision has not been rendered less hot by the enumeration of the tests of fair value there stated, and the suggestion that there may be other tests also. What are the others? With respect to fair rate of return, there was at least one anchor—the customary or legal rate of interest. Awaiting a solution of the fair value problem, the rate of return has been allowed to ride.

The Determination of the Rate of Return a Specific Problem

That the arriving at a reasonable rate of return is a specific problem in each case is to be inferred from the case of *Wilcox v. Consolidated Gas Company*.³ It is there stated that "there is no particular rate of compensation which must in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon circumstances and locality. . . ." And time might well have been

¹ In *Fair Value*, by Harleigh H. Hartman, one chapter is devoted to the rate of return; in *Rate Making for Public Utilities*, by Lamar Lyndon, only a few paragraphs are given to the rate of return; in *Guiding Principles of Public Service Regulation*, by H. C. Spurr, the following is found in Vol. I, p. 302: "In determining what constitutes a reasonable return for a public utility company, two factors must be taken into account—the basis upon which the return is to be calculated and the percentage of return to be allowed. Is a 6%

return reasonable, or should it be 8% or 10%; and furthermore, a 6% or 8% or 10% return upon what?" The subject of rate of return is discussed in the first few chapters of Volume III.

See also: "Regulation of Railway Rates under the Fourteenth Amendment," by Francis T. Swayze, of the Supreme Court of New Jersey, *Quarterly Journal of Economics*, May, 1912, pp. 381 ff.

² Of the 250-odd exhibits introduced in evidence in this case, only 6 had to do with rate of return.

³ 212 U. S. 19 at 48.

added. The inference is clear that there is a particular rate of compensation applicable in each rate case in the particular locality in which the utility operates or from which it would attract the necessary capital.

Two Meanings and Two Functions of Rate of Return

The duty imposed upon a regulatory body is the making of rates. A commission may adopt a policy of establishing a stable schedule of rates and a fluctuating rate of return, or it may choose a fluctuating rate schedule and a constant rate of return. If the character of the utility necessitates the adoption of the former of these policies, then the rate of return, in so far as a hearing is concerned, is to be considered as of a given date. In this sense it becomes a part of the mechanics of rate-making. It becomes a factor in computation and is used with the value of the property as of that date to determine the net operating income which reasonable rates would have produced.

To determine what this rate schedule is, net operating income has to be distributed over the number of units of business done during the year in question.

A rate schedule so indicated will necessarily be modified by a consideration of whatever other factors may be regarded as having weight upon reasonableness in the particular case under consideration. This process of computing rates is particularly applicable in those utilities whose schedules are simple, as contrasted, for instance, with that of a railroad. Examples of this class are gas companies, water companies, electric light and power companies, street railway companies, stockyards companies, and, to a limited extent, telephone companies. When

rates for utilities using a simple schedule have been so determined, they are then ready for a trial.

They may or may not turn out in actual operation to be reasonable, but at least they stand a better chance of being so than if made arbitrarily. By using the rate of return as of a given date as a factor in computing rates, a regulatory body will have availed itself of an additional factor which is not possible in the case of those corporations whose schedules are so complex that a reasonable net operating income cannot be distributed over the number of units of service produced.

If a commission, either through choice or necessity, adopts the latter policy of rate-making, or a variation of it, the rate of return will then be used as the average rate which it is desired that the utility earn over a period of years. In this case, rate of return becomes solely a criterion of reasonableness. Rates *computed* upon rate of return used in this sense will be reasonable only provided the utility happens to earn during the year in question the normal rate of return or the average aimed at. This will seldom occur.

No end of confusion is constantly arising because rate of return in these two distinct senses is used indiscriminately. To illustrate: I have before me the evidence taken before an examiner in 1922. The witness for the public testified that, in his opinion, 7% was a reasonable rate of return, and this rate was later upheld by a court. The utility whose rates were under investigation operates on an extremely simple schedule. In its findings the regulatory body very properly took 7% of the rate base and distributed that amount over the volume of business done in 1922 and found the result to be

a schedule of reasonable rates for that utility. When put into actual operation, the schedule so computed produced a return of 10% in 1923, 17½% in 1924, and 11% in 1925, or an average for the four-year period, 1922 through 1925, of eleven and a fraction per cent. Had this hearing been held in 1924, and the same method followed, 17½% testified to as a reasonable rate would have resulted in exactly the same schedule, and would, therefore, have been a rate of return as reasonable as 7% would have been in 1922.

If what the court had in mind as a test of reasonableness was an average return of 7% on the value of the property, rates computed on a 3% basis would have produced this result. A 3% rate of return used as a rate factor is the exact equivalent of 7% used as a criterion of reasonableness.

Failure to distinguish the two senses in which rate of return is used accounts, in part at least, for our ever-recurring rate hearings. Schedules computed on the basis of an average rate of return during a period of low earnings prove to be abnormally high when business recovers and vice versa.

One wonders what a court would do with a case coming up from a commission if the rates had been determined during a period of depression on 4% of the value, or 14% during a period of prosperity, if it appeared from the record that these rates would have produced an average return of say 8% during previous years and would probably produce the same average for a considerable time in the future. Four per cent and 14% in the above illustrations are matters of the mechanics of rate-making. Eight per cent is a criterion of reasonableness. It is the rate of return in the latter sense in which the courts are mainly interested.

A rate case is a definite inquiry, not a general investigation. A method of procedure satisfactory to the court has been indicated in the Bluefield case:⁴ "A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties. . . . The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties."

Clearly what the court had in mind here is that rates are reasonable if they produce, year after year, a large enough net operating income to insure that the securities, whether bonds, preferred or common stock of the utility, shall be looked upon by the investing public with the same degree of favor as similar securities of other business undertakings attended by similar risks.

The demands of the court will have been met if the management of a utility is given an opportunity to maintain its credit. The statement of the court implies, of course, that the sum total of securities outstanding shall not exceed the value of the utility and that the financial structure shall not be so predominately bonds and preferred stocks as to force the common stock, or even other securities, into the speculative class.

A policy of overcapitalization or a

⁴Bluefield Water Works and Improvement Co. v. Pub. Service Commission of W. Va., 262 U. S. 679 at 692-693.

faulty financial structure puts the utility without the pale of efficient and economical management. In the absence of security control by the regulatory body, the results attending such a policy are chargeable against management and not against rates.

A Suggested Method of Determining Rate of Return

The proper selection of a group of corporations as the criterion in a rate case necessitates the exercise of judgment. Assuming for the moment that such a criterion has been selected, what is to be the method of procedure? At least five steps are involved:

1. A determination of the bond interest rate to be employed;
2. A similar determination as to preferred stock dividend rate;
3. The determination of the necessary earnings on the common stock;
4. The assumption of a conservative financial structure;
5. The reduction of these rates to a composite applicable to the value of the property.

Interest Rates, Preferred and Common Dividend Rates

The interest rate allowable on that portion of the value of the utility to be represented by bonds is a matter of finding the rate at which the public is, at the time of the hearing, capitalizing incomes of equal certainty. If the performance of a selected group of corporations be chosen as a standard, the bond interest rate allowable will be the rate at which the interest or dividends on the securities of these corporations are being capitalized in the market. During periods of ordinary business activity this rate of capitalization will be found to be approximately

the same whether the income be received in the form of interest, preferred or common dividends.*

Economical management demands, of course, that an escape be provided from a high interest rate on an issue put out during a period of tight money. This is possible through the issuance of short-term notes or redeemable bonds. Whatever the condition of the money market, however, or the character of the utility, the proceeds of the bond sale will, in most cases, be less than the face value of the issue. The discount must be amortized over the life of the bond, and the necessary allowance made in the interest rate. Knowing the bond issues of a group of corporations, their price and yield, and with a general knowledge of the money market, it is possible to gage within a small fraction of a per cent what rate should be used in determining the interest which it is proposed to apply to the bonds of the utility.

The determination of the rate to be allowed on preferred stock is a comparatively simple matter. Tradition, customer participation, and other potential influences have nearly, if not quite, established this rate. In most preferred stock issues, the provisions of the contract will be such that this stock will sell at or very nearly at par.

The determination of the common dividends necessary is not so simple. Substantial justice will have been done a utility if it is put in a position to follow as liberal a common stock dividend policy as has been followed, and presumably will be followed, by that group of corporations with which it is to be compared. Of all those factors

* This statement is based upon a somewhat extended statistical examination of corporate earnings and security prices.

which give to common stock an investment status, earnings alone excepted, the dividend policy of the issuing corporations is the most important.

I have before me three groups of corporations. One of these was suggested as a proper criterion by an investment banker who testified in a rate case which has not yet been disposed of; another by a gentleman of wide financial experience; and the third by me, selected because the common stocks are listed and active on the New York Stock Exchange, each having sold on the average at par or better over a period of 10 years. In the case of the corporations in these groups, most have pursued a continuous, uniform, and liberal, though not extravagant, dividend policy. With dividends thus assured, the common stocks of these corporations averaged par or better in the open market.

Financial Structure

Interest rates and preferred and common dividend rates must, of necessity, be related to a financial structure. A study of the most successful utility corporations shows that financial structures tend to crystallize into a type or norm. This structure varies somewhat over long periods of time. In the ordinary rate case, a financial structure must be assumed which will serve as a benchmark, a sort of point of departure for management. This assumed structure must be such that it can vary from time to time as a result of the sale of such securities as good business judgment dictates at the time funds are raised.

It has been claimed that earnings sufficiently liberal to enable a utility to issue common stock at par under all circumstances should be allowed. Such a claim is extravagant for the simple reason that it is sometimes impossible

to do so. Corporations with ample earnings often find it advisable to issue bonds. A utility will have suffered no hardship from regulation, if it is forced through general business conditions to sell other classes of securities than common stock, when at the same time other comparable businesses are resorting to bond sales. Maintenance of credit is a relative, not an absolute matter.

For practical purposes, a financial structure in which bonds, preferred stock and common stock are given equal weight will, in the majority of cases, meet the necessary requirements.

Common Stockholders

The crux of public utility regulation lies in the adoption of a feasible plan for maintaining the continuity of moderate dividends on the common stock. The fact that the common stock of many of the smaller public utilities is owned by holding companies, and is not on the market, does not change the fundamental problem. Common stockholders, whoever they may be, are entitled to an income on their investment, provided the stock represents a real part of the value of the property.

Three methods and only three are open to a regulatory body in its effort to assure common stock dividends.

1. Deficits may be recouped by an increase in rates.
2. They may be prevented by a change in rates when a deficit impends.
3. They may be provided against before they occur.

Which of these is to be adopted depends somewhat upon the mobility or rigidity of rates, and upon which is less expensive to the public. The altitude of some rates may not be changed at will, even though an emergency exists. Furthermore, the adoption of a feasible

policy for the attainment of a desired end may be altogether too expensive.

So far as the adoption of the first of these is concerned, little need be said. The payment of interest or dividends out of capital or the proceeds of loans leaves an unfavorable impression in the minds of the investing public. Such a policy smacks of financial weakness. Restitution could hardly be made even by allowing rates excessively high.

The feasibility of the employment of the second of these methods depends upon the mobility of the rate schedule and the power placed by law in the hands of the regulatory body. Even though the rate schedule may be shifted without harm, it may be that the regulatory law makes it much easier to raise rates than to lower them. If the burden of proof of reasonableness be upon the regulatory body and rates filed by a utility become effective automatically after the expiration of a specified time, the commission may raise rates to take care of a prospective deficit, but may have to order a hearing and suffer a delay in its attempt to lower them when a surplus impends. In order to employ the second method suggested, the commission must have the power of indefinite suspension, "set-screw" control.

If the purpose of a surplus is to serve as a reserve fund for making good to security holders deficits during lean years, thus assuring continuity of divi-

dends, clearly the function of surplus has been performed when this has been accomplished. A surplus for this purpose is, in reality, a trust fund deposited by the users of the service with the corporation as a legal entity, for the benefit of the security holders as individuals. The unused portion is still the property of the users. If a surplus so large as to make possible stock dividends is the result of rates excessively high, a recurrence preventable through a lowering of rates, what is the character of that portion of the surplus left after all obligations to all stockholders are met and the credit of the corporation has actually been maintained?

The investing public is accustomed to look at assets already available when it is considering what securities to buy. A dividend dollar already in hand is a far more potent factor in maintaining the price of a stock than a dollar yet to be earned through a prospective increase in rates.

Waiving whatever claim the using public may have in a moderate surplus, paying rates somewhat higher than actually necessary to enable the utility to meet its obligations to its security holders may after all be the cheapest way of maintaining credit. If so, then sensible regulation demands the adoption of this method. From the standpoint of the investing public, it is certainly the most satisfactory.⁶

⁶ On November 22, 1926, after the above was in proof, the Supreme Court of the United States handed down a decision in *John W. McCordle, et al., as Members of the Public Service Commission of Indiana, et al., v. Indianapolis Water Company*, 47 Su. Ct. 144. Two passages in this decision bear upon the views set forth in this paper:

In every confiscation case, the future as well as the present must be regarded. It must be determined whether the rates complained of are yielding and will yield, over and above the amounts required to pay taxes and proper operating charges, a sum sufficient to constitute just compensation for the use of the property employed to furnish the service; that is, a reasonable rate of return on the value of the property at the time of the investigation and for a reasonable time in the immediate future.

...It is obvious that rates of yield on investments in bonds plus brokerage is [sic] substantially less than the rate of return required to constitute just compensation for the use of properties in the public service. Bonds rarely constitute the source of all the money required to finance public utilities. And investors insist on higher yields on stock than current rates of interest on bonds. Obviously, the cost of money to finance the whole enterprise is not measured by interest rates plus brokerage on bonds floated for only a part of the investment. The evidence is more than sufficient to sustain the rate of 7% found by the commission. And recent decisions support a higher rate of return.

Mr. Justice Brandeis said in his dissenting opinion:

I add merely that in my opinion the facts of record, considered in connection with those of which we have judicial notice, do not justify holding that rates which yield a return of less than 7% would be so unreasonably low as to be confiscatory.

SOME LIMITATIONS OF ARBITRATION OF PUBLIC UTILITY LABOR DISPUTES

By E. W. MOREHOUSE

THREE events during the past year have directed attention anew to the possibilities of arbitration in minimizing the waste and public inconvenience of labor disputes. The first was the passing of the Watson-Parker bill¹ for the adjustment of railway labor disputes, which was signed by the President on May 20 and ushered in what has been described as a new era in labor relations on the steam railways. The first major dispute arising under this act has just been settled by arbitration without a stoppage of work.² The third event is of general significance. A committee of the American Bar Association made a report on industrial arbitration in which approval was given to enforcement of awards on the analogy of enforcement of contracts.³ Since the whole question of arbitration is thus brought into the foreground, it is appropriate to consider some of the limitations and problems revealed by past experience.

In the field of public utilities this subject is especially significant because of consumers' dependence on uninterrupted service. Thus a legal duty to give continuous service to consumers has been imposed on utilities. Do employees of the utilities have the same duty? This is a much disputed question. At the hearings on the Watson-Parker bill it was debated very earnestly and vehemently and it crops up as soon as

difficulties in labor relations in the utilities appear on the horizon. Some people sincerely believe that the public's dependence on continuous service creates a duty to refrain from strikes. Others, equally sincere, claim that the workers have a superior right to quit work individually or collectively and that this right (really a privilege) is guaranteed by the Constitution. This issue is too complex to examine here; it is mentioned only because it is intimately involved in arbitration, for arbitration is one means of avoiding this issue.

Whatever may be the justification for using the strike privilege in a given situation, the feeling is wide-spread that on public utilities the justification must be stronger than is ordinarily the case. This is not alone a matter of "public right"; it is also good tactics. The patrons of utilities because of their dependence will be aroused more quickly and will give more attention to a stoppage of an essential service than to a strike in which consumers' interests are more remote. The possibility that a costly strike will lead to a demand for increased rates of service is an added reason for a rather keen public interest in ways and means of avoiding stoppages.⁴

Arbitration, of course, is only one means of forestalling the exercise of

¹ *Monthly Labor Review*, Vol. 22, p. 1208.

² Report and award of arbitrators of dispute involving conductors and trainmen on railroads in Eastern District, December 1, 1926.

³ *Monthly Labor Review*, Vol. 23, p. 715.

⁴ Whether the recent growth of customer ownership of utility securities has increased the sensitivity of the public to the strike problem is a moot question. Theoretically, an affirmative answer can be amply supported.

labor's privilege of quitting work. There is, first of all, negotiation, which if unsuccessful often merges into mediation (indirect negotiation through third parties) or compulsory investigation. Arbitration is usually a last resort, although in the Watson-Parker Act public investigation is turned to after negotiation, mediation, and arbitration successively have been tried.

The line separating arbitration from mediation is often very thin, for many arbitrators try first to mediate differences in order to narrow the issues which they will have to decide. This is not necessarily an evasion of duty. If the disputants can be persuaded to agree on some issues, the arbitrator not only makes his own job easier but increases the chances of having his judgment on unsettled issues accepted by cultivating a disposition to agree. The heart of arbitration, however, is the substitution of a third party for agreement.

To give to third parties the task of deciding issues which, if undecided, will lead to a strike has not often been really successful. How can arbitration be made more effective?

I am aware that this statement of the ineffectiveness of arbitration will meet dissent. But the objections will come largely from those who picture arbitration as the judicial method of meting out justice to labor and capital. They look upon adjudication as a means of substituting cool-headedness for passions and prejudices. The result is an imitation of judicial forms, technique, and atmosphere.

This idea of arbitration, if carried too far, seems to me misleading because it tends to minimize or overlook two fundamentals: (1) the complexity of labor disputes; (2) the distinction between the legislative and judicial functions.

Too often we think of labor disputes in purely economic terms. It is true that the majority of disputes center about economic differences. Labor's share of the income of the enterprise (the wage issue) is ordinarily foremost in the list of grievances, followed by hours, conditions of work, and so on. But psychological, ethical, and political issues, which frequently do not show up in statistics or even in a list of grievances, are also involved in practically all disputes. Sometimes the dispute starts from one individual's feeling of discrimination about a relatively trivial matter; the feeling spreads until it ripens into a mass movement which, under the influence of a dominant, energetic personality, becomes a concerted movement towards larger ends, though the minor grievances still remain part of the dispute. A mistake occurs when we oversimplify these diverse emotional, political, and economic elements and attempt to classify all disputes into one or a few types. Every dispute, indeed, has overlapping areas of conflict, each with a different mixture of these elements.

Can a third party, a stranger to these emotions, ever mete out justice?⁹ If the arbitrator remains aloof and indifferent to these elements, he does not get to the heart of the dispute. If he enters into these feelings, he exposes himself to charges of favoritism. Moreover, in a mass movement the intensity of feeling varies from individual to individual. On the employer's side this problem is less acute because of the fewer individuals involved. Is it possible to frame an award applying to a

⁹ See William L. Huggins, *Labor and Democracy* (New York, The Macmillan Company, 1922), p. 47, for an attempted distinction between "arbitration" and "adjudication"; and *State v. Howat*, 109 Kan. 376 (1921).

large number of people which will meet all the varying individual standards of equity and fair dealing?"

This difficulty, arising from the nature of labor disputes, leads directly into the problem of jurisdiction. What kinds of questions are arbitrable? The answer depends on the distinction between legislative and judicial functions.

The American judiciary has met this question in the larger field of its activity. One distinction that has found its way into the cases is the time element. A legislature looks to the future and fixes the metes and bounds of future conduct. A court, on the other hand, looks largely to the past in adjudicating disputes that have arisen out of past conduct. This distinction does not seem particularly helpful, because courts do affect future conduct in so far as their decisions alter the future relations of the litigants and their opinions become precedents for future decisions. A more useful distinction is found in the scope of the two functions. Legislative rules are, for the most part, group rules, affecting a large number of people similarly situated. Judicial rules are largely individual rules,⁷ binding on plaintiff and defendant but not necessarily on all subsequent plaintiffs and defendants. Even this is not an altogether clear-cut distinction. Our courts in passing on the

validity of legislation, to mention only one example, make decisions that are in effect legislative; in other words, American courts have come to exercise a blending of judicial and legislative functions. That they are aware of the difficulties involved is well shown by the United States Supreme Court's cautious practice of pricking out the limits of legislative action by the "gradual process of exclusion and inclusion."⁸

Arbitration boards and the courts exercise a similar blending of legislative and judicial functions, with the emphasis on legislative functions in arbitration cases. In most instances, particularly on public utilities, arbitration is a last resort to avert the crisis of a strike. The board is called upon to make an award affecting a large number of workers, stockholders, investors, and consumers, to deal with future conduct, and to define the rights, duties, and privileges of workers and others. The judgment of a third party fixes basic industrial policies in which great interests are at stake. Wage policies, hours of work, standards of living, sometimes the demand for union recognition—all these issues, complicated by emotions and industrial politics, form legislative questions. Are they arbitrable?⁹ If they are, how can an arbitrator deal with them most effectively?

⁷ See, for example, the valuable appraisal of the Kansas Court by Herbert Feis, "The Kansas Court of Industrial Relations, its Spokesmen, its Record", *Quarterly Journal of Economics*, Vol. 37, p. 705 (August, 1923).

⁸ The judicial treatment of corporations as legal entities is, of course, an exception, since a corporation, despite the legal fiction, is really an association of individuals, a concerted mass movement. Yet the law tends to use the entity theory merely as a convenient tool to reach a desired result. See and compare 36 *Yale Law Journal* 254 (1926) (with citations); Sturges, "Unincorporated Associations as Parties to Actions", 33 *Yale Law Journal* 383 (1924); *United Mine Workers v. Coronado*

Coal Co., 259 U. S. 344 (1922).

⁹ Instances of this awareness are found in the following cases: *Village of Euclid v. Ambler Realty Co.*, 47 Su. Ct. 114 (1926); *Pennsylvania Railroad System Federation No. 90 v. Pennsylvania Railroad*, 45 Su. Ct. 307 at 311 (1925); *Wilson v. New*, 243 U. S. 332 (1917).

¹⁰ American political traditions generally are against giving wide powers over others to a few men; American industrial traditions tend the other way. In politics, when courts have drastically checked legislative action, sooner or later a popular protest movement has sprung up. Industry is not without similar experiences in the history of labor organizations.

The way out of such group conflicts is ordinarily by direct negotiation, by bargaining, which is the legislative method. But when negotiation has failed, and an arbitrator is called in, it is not unnatural for him to feel that an award has to be made, if only to protect a dependent public. This reaction is especially likely if arbitration is merely temporary and the board ceases to exist when the emergency is over. The danger lies in not distinguishing legislative and judicial questions, for, as the courts have found, identical treatment for both classes of questions leads to unsatisfactory results. Much of the unpopularity of arbitration in the past has been due to arbitrators who, in identifying the arbitral and purely judicial functions, have used the same technique for both legislative and judicial questions.¹⁰

Perhaps this is inevitable as long as "crisis" arbitration is customary, although a somewhat different procedure is possible and will be suggested later. But the best chance of solving the vital problem of what is properly arbitrable occurs when arbitration is continuous rather than temporary, and is accompanied by continuous negotiation between responsible and clear-visioned representatives. With such an arrangement it is possible to give piecemeal consideration to issues which are lumped together when emergency boards are created. Thus the strain on arbitration machinery is lessened because legislative questions, which should be matters of agreement between employers and employees, can be segregated and thrown back to the negotiators.

This type of arbitration has been de-

veloped to its fullest extent in the clothing industry. It is a contribution to the theory and practice of arbitration which is best described in the words of one of the parties.

Many reasons have been given for the peculiar success of arbitration in this industry and, no doubt, all have more or less strength. The men attracted to the office of impartial chairman have been uniformly of high character and marked ability. The fact that arbitration has been a continuous operation, not invoked occasionally to avert a crisis, has contributed to confer on the arbitrators a technical proficiency in the problems of the industry which a short, interrupted tenure cannot yield. Moreover, continuity has bred familiarity and the ease and confidence that often accompany the familiar; so that all parties have come by a gradual process of use to resort to the machinery of arbitration as a matter of habit.

Fundamentally, however, the causes of success lie deeper. They reside in the flexibility of arbitration as it is practiced in the clothing industry and in the attitude toward it of the two parties to the collective bargain, the union and the manufacturers. The great burdens of critical decision have rarely, if ever, been imposed on the arbitrator. Both the union and the manufacturers have always realized that the ultimate responsibility for the safe conduct of the industry rested upon them. It is a responsibility so serious that they could shift it only at their peril. If a crisis in the industry required drastic action on one side or the other, it was far better for either side to accept responsibility for that action and not shift it to the machinery of arbitration. . . .

The impartial chairman remains the indispensable mediator; he decides hundreds of cases involving practices, procedure, and understandings that contain within them the germs of serious misunderstandings; he is the trusted and expert finder of facts in the industry; he performs an administrative function of immense value by hastening the settlement of disputed issues; but he is not the oracular judge who can make for the union and the industry those decisions on basic policy which they are so frequently in American industry unwilling to make for themselves.¹¹

¹⁰ This was one of the causes of the failure of the Railroad Labor Board.

¹¹ Report of General Executive Board of Amalgamated Clothing Workers to 7th Biennial Convention, 1926, pp. 25-27.

By way of contrast, experience with standing arbitration boards having *general* jurisdiction has not been a uniform success. Many reasons can be found for the unpopularity of the late Railroad Labor Board. The fact that the board had general jurisdiction which brought both disputed facts and disputed policies before it is one reason. It was also the fate of the board to be called upon early to formulate a vital policy of deflation. In addition there is a tactical explanation. Weak unions tend to look on arbitration as an opportunity to gain recognition; strong unions believe they can get more without arbitration. Moreover, with permanent boards the parties become able to guess fairly accurately what the decision of the board will be, and this tends to dampen the willingness to arbitrate, even at the risk of public disapproval; for when great issues are at stake, arbitration with uncertain results offers a gambler's chance of getting more than by bargaining or striking. Finally, the Railroad Labor Board is only one of many illustrations of the importance and difficulty of choosing the right sort of men to handle satisfactorily a complex labor dispute.

A common criticism of arbitration is that the men selected do not know the technical details involved in disputes. The result is frequently an award that is so unfair or so unclear as to breed more disputes. As long as crisis arbitration is the chief reliance, the parties must take the risk of an uninformed arbitrator. However, it is believed that this risk might be reduced if more study and attention were given to the mental equipment necessary for dealing with the various kinds of disputes. Too often the standard of choice seems to be prestige in the community or supposed bias toward one side or the other.

These qualifications are no guaranty that the situation will be dealt with in the most effective manner, for some men are equipped to arbitrate only certain kinds of disputes or certain areas of a given dispute.

From reading a number of awards and from observation, I would roughly classify arbitrators into four types. First of all, there is the legalist. He is an objective person, not interested in the psychological aspects of a dispute, and is inclined to depend on logic, precedent, or tradition in reaching a conclusion. He reasons out consequences on the basis of accepted principles. To him, justice is a matter of evidence. Then there is the moralist, the type of person who has emotionalized his opinions about the labor movement and who is likely to be interested primarily in the ethical aspects of a dispute. (To him, justice is a matter of social reform.) Next comes the bargainer, the product, perhaps, of experience in mediation. This type generally tries first of all to mediate differences. Failing in that, a decision is made according to the balance of economic power, so that the result is approximately the same as would have obtained if both sides had fought it out. To the bargainer, justice is what will work. Finally, there is the arbitrator who may best be described as a realist with a constructive purpose. He is eclectic, tries to determine the emotional as well as the economic and political issues, seeks the technical factors underlying the dispute, considers the evidence of past practices, analyzes the economic principles involved, and in the end tries to build a policy of stable, equitable relations for the future. To the realist with a policy for the future, justice is a matter of building equitable and economic working rules.

Since arbitrators differ in mental equipment for the task, it is as important to fit the arbitrator to the type of dispute as to fit the worker to the job. Otherwise, effective arbitration is endangered in the same way that a misfit worker reduces efficiency.

Yet, even after precautions are taken in the selection of the arbitrator, arbitration may break down on the award. The problem here is to decide which of three principles should be applied. The first principle is that of "splitting the difference"; the second is that of balancing the difference; the third may be described as the principle of working rules or stabilization.

Many arbitration awards have been justly condemned because they "split the difference," or appear to do so. Conclusions of this kind dodge difficulties rather than meet them. The theory back of "splitting the difference" seems to be that arbitration is merely a safety-valve for the emotions, and that an arbitrator cannot possibly determine and weigh all the diverse strands in the dispute. Under these circumstances, it is said, the only thing to do is to make an award midway between the demands of the two parties.

That this principle settles nothing is apparent. It is also a vicious formula from the standpoint of constructive arbitration, for both sides are encouraged by it to make extreme demands. Possibly, however, a break in relations may be avoided by giving each disputant equal feelings of disappointment. But this can hardly be said to contribute to stable relations in the future.

The "balance the difference" principle is the one used most often by the type of arbitrator previously described as a bargainer. The application of this principle results in an award which is substantially what would have hap-

pened if there had been a trial of strength instead of arbitration. It leaves the parties really *in statu quo ante*. Sometimes this method involves the much-abused trick of "giving the language to one side and the verdict to the other." Clearly the principle is based on the theory that arbitration is merely a temporary substitute for negotiation.

Under some circumstances, the use of this bargaining principle is justified, as, for example, when a dispute involves issues of basic policy for which the parties themselves should be responsible. But nothing is gained in the long run by trying to make it appear that a dispute is settled on its merits when in reality an arbitrator has really just weighed the balance of power. The illusion is soon punctured, and resentment at being fooled is a natural result. It would be better to state clearly what has been done and why.

An alternative which merits further experimentation is for the arbitrator to indicate in his award the limits within which he believes future policies should lie and to leave to the disputants the task of making necessary adjustments within those limits. It may be said that such procedure side-steps the issue or shirks a duty. That depends on one's view of the function of an arbitrator. An award that fixes limits is based on the idea that a dispute in which a great deal is at stake cannot be satisfactorily settled by the fiat of a third party.

The third principle, here called the principle of working rules, is especially suited to those disputes, or areas of dispute, in which modification does not mean a radical change of existing policies. The principle is based on what may be called the "going concern" theory of arbitration. According to this theory, relationships between indi-

vidual employers and workers are seen to be part of a concerted or mass movement toward certain more or less well-defined ends. The outer limits of mass movements of workers, employers, merchants, landlords, bankers, and so on, are found in constitutional and statute law, as interpreted by the courts. Within these limits, individuals and groups of individuals are privileged to act without molestation by public authority; the law is indifferent to what happens. But the extra-legal activity of individuals and groups is itself ordered by certain customs and practices which have grown up out of past experience and are expected to continue in the future. The rules may be written or unwritten. If written, they are found in trade agreements, employees' hand books, lists of shop rules, codes of ethics, corporation charters, orders of public service commissions, and so forth. If unwritten, they may be observed in the customs and usages to which individual employers and workers have conformed in the past. Whether written or unwritten, they are rules of conduct; they enable one to predict how others will act in the future.

An arbitrator who sees his problem in these terms has the task of deciding which of conflicting standards should be sanctioned. Out of the good and bad rules, the arbitrator, like the judge, selects the good, better, or best practices which should guide future behavior. Ordinarily the dominant consideration is what will be the consequences of a different rule. In the case of judicial process, such considerations are called public purpose; in the case of arbitration, they may be called economy, efficiency, industrial stability, good-will, and so on. Thus the selection of a rule is also the selection of the purpose of human relations.

An arbitrator who seeks to work out this conception finds that definite and clear-cut principles are often lacking. It is a field of study that needs more intensive cultivation to uncover tools for arbitrators and managers of labor relations alike. We have, it is true, in the Transportation Act of 1920 a list of seven factors which the Railroad Labor Board was to take into account in fixing wages, and to these the Kansas Industrial Court added another.¹¹ Various other arbitration boards, both temporary and permanent, in this country as well as in other countries, have experimented with these or different principles, mostly, however, in regard to wage disputes. The elucidation of guiding principles for the protection or conservation of the job, as distinguished from the protection of earnings, is not so well developed. In all cases, there is great need for more detailed study of the economic effects of applying these principles or others to concrete situations.

Suppose an arbitrator has this attitude of looking at labor disputes as a phase of a concerted or mass movement and also has at his command a good knowledge of working rules and their effects; what shall he do? Probably his attention will be concentrated first on separating the area of dispute into two parts: (1) The issues which involve policies so fundamental that they ought to be determined by the legislative method of negotiation; (2) the issues which have less at stake and which therefore are likely to be solved satisfactorily by a moderate change in working rules. To the first class of

¹¹ *State of Kansas ex rel. Attorney-General and members of Local No. 831 of International Brotherhood of Electrical Workers v. Topeka Edison Company*, First Annual Report of Court of Industrial Relations, 1920, p. 23.

issues he will apply the balance-of-difference principle, which, in effect, merely shifts the responsibility for settlement back to the disputants after a period of cooling off. To the second class of issues he will apply the working-rule principle, after determining the facts (which may be disputed or unclear) and the probable economic effects (in terms of efficiency, stability, good-will, and the like) of sanctioning different working rules.

Though the award be a reasonably good one, there is still the problem of enforcement, the final test of the effectiveness of arbitration. This is especially important in the public utility field because of consumers' dependence on uninterrupted service. Even a good award may be spoiled if antagonism rather than conformity is the outcome of attempts to enforce it.

In general, three types of sanctions may be used. The award may be enforced in a court of law; this is the strongest inducement to obey, since it is backed up by the power of the government. It is also the method advocated by the committee of the American Bar Association. One should note, however, that compulsory enforcement does not mean strictly compulsory arbitration, which occurs when there is a legal obligation both to submit a dispute before striking and to obey an award. A second alternative is to use economic penalties, such as fines, overtime work at straight pay, and so on. A third alternative is to leave enforce-

ment to the good faith of the two parties. Here the inducement is merely the sentiment of moral obligation to keep agreements.

All three degrees of inducements blend into one another, making it difficult to separate them analytically. But a choice must be made. The Railroad Labor Board was limited to the moral inducement, an appeal to public opinion.¹³ The arbitration awards under the Railway Labor Act of 1926 may be enforced by a court order, as was the case in the Kansas Industrial Court Act.

This question of the most effective means of enforcing arbitration awards is many-sided. The complications are of two general types, legal and economic. In view of the Thirteenth Amendment, is it constitutional to enlist the judicial power in enforcing awards? Undoubtedly a stronger case can be made out for legal enforcement of awards in public utility industries than in private industries.¹⁴ But if constitutional difficulties are brushed aside, many practical legal difficulties remain. Are the courts equipped to handle the task?¹⁵ The delay in legal procedure is a very serious obstacle, among others, because timeliness is important when rapid economic changes are involved.

The difficulties in enforcing awards by economic penalties revolve around the question whether persuasion or compulsion in some degree is the better means of getting human beings to do

¹³ *Pennsylvania Railroad Company v. U. S. Railroad Labor Board*, 261 U. S. 72 (1923).

¹⁴ Cf. *Robertson v. Baldwin*, 165 U. S. 275 (1897); *Bailey v. Alabama*, 219 U. S. 219 (1911); *Wilson v. New*, 243 U. S. 332 (1917); *Wolff Packing Company v. Kansas Court of Industrial Relations*, 262 U. S. 522 (1923).

¹⁵ Frequently, temporary arbitration to avert a

crisis results in an ambiguous award, requiring subsequent interpretation to avoid further disputes. In such cases, a problem is raised whether to call back the original board, continue the board as permanent, or provide for temporary umpires whose sole function should be to interpret the application of the award to the specific facts. On the whole, experience under the Newlands Act seems to point to the advisability of the umpire or referee method.

certain things. Generally speaking, we observe that willing workers give more efficient service than coerced workers. It would seem, therefore, that in the long run the best results would come from treating the observance of awards as a matter of good faith, or mutual self-interest. In the case of standing arbitrators with limited jurisdiction, it is possible to secure obedience by minor economic penalties if the workers are organized into a strong, disciplined union, capable of holding members in line. In the absence of such responsible organization, economic penalties for disobedience are likely to cause more ill-will than good-will.

After all, arbitration is no panacea. Its effectiveness in avoiding interruptions of work can be increased if there is a clear understanding of the limitations and problems involved. There is no magic formula for making it successful. Past experience has revealed some of these difficulties; future experimentation, accompanied by a clear sense of realities and group psychology, will, I believe, reveal others. At present the chief difficulty is that too much is expected of arbitrators. Also, the

offer and acceptance of arbitration are bargaining points, with the result that it is generally looked upon as a substitute, rather than a supplement, for negotiation. This attitude leads to "crisis" arbitration, which rarely is permanently successful and almost never builds a constructive policy for the future. Even where arbitration is thus used, however, it can function more effectively if arbitrators are fitted to their jobs, if they then separate the legislative from the judicial issues and treat each differently, and if the means of enforcement is adapted to the psychological, economic, and institutional situation with which the award deals. More intelligent negotiation and more realistic arbitration are both needed.

For the most part, however, arbitration is better adapted to decisions of disputed facts which do not involve large numbers of people or fundamental policies and to the modification of working rules which lead in the direction of more stable relations in the future. In other words, it is adapted to the piecemeal building of a policy and of practices of stabilization, reducing the uncertainties and risks of the future.

IS PUBLIC UTILITY REGULATION EFFECTIVE?

A REVIEW OF TWO RECENT BOOKS

By MARTIN G. GLAESER

A LITTLE over a decade ago the question whether public utility regulation was effective would have been answered with a hopeful affirmative. If not everywhere successful, conspicuous instances of success, it was thought, could be found. From these one might derive some suggestions as to improved methods, devices, and principles which should be applied. The state commission system of regulation was well-nigh universal, and it seemed as if the system required only a little more rounding out and improvement in detail.

At the present time this feeling of optimism is gone. Certainly, it is by no means as general as it once was. In several states the commissions are definitely on the defensive; and in some instances the commissioners themselves are grumbling that their effectiveness is gone. Since this state of mind exists, it is interesting to compare two recent books which deal more or less with this question.¹

John Bauer in his recent book is an outstanding critic of the present method of public utility regulation. He elaborates upon earlier treatments of the same subject and comes forward at the same time with a definite suggestion which, he contends, will put an end to the difficulties of the present system of regulation.

The book is written primarily for

constructive use by commissions, municipalities, investors, the utilities themselves, and "the several professional groups interested in the work of regulation." The author also claims to have presented the subject-matter "so as to make it suitable for text-book use in college and university courses dealing with regulation."

As to the first purpose, it may be said that the author has fully achieved his goal. The book was written *from* and *for* the firing line, as he suggests in his preface. It is therefore in the nature of a sustained argument which, while it presents the subject rather completely, nevertheless selects among the materials and distributes the emphasis in such a manner as to build up the conclusion for which the author contends. Among the several books dealing with public utilities that have recently appeared, Dr. Bauer's book stands out for its consistent point of view and for the way in which non-essentials are brushed aside and discussion is directed toward the focal points of conflict in public utility regulation. Whether or not one fully agrees with the author in his conclusions, the book challenges attention all along the line. To say that Dr. Bauer's treatment is unbiased would be stating what is less than the truth. No doubt Dr. Bauer's experience as a consultant and academic lecturer leads him to state his opponents' position fairly and correctly, but the full force of the opposing argument is not presented. There is also some unnecessary repetition of his own arguments which de-

¹ Bauer, John, *Effective Regulation of Public Utilities*, The Macmillan Company, New York, 1925. Clark, J. M., *Social Control of Business*, University of Chicago Press, 1926.

tracts somewhat from the vigor of statement.

Although the book is a consistent statement of what has come to be the "public point of view" upon the moot problems of regulation, it does not go into the historical aspects of these problems sufficiently to give the student or general reader the requisite background. Reading only Dr. Bauer's treatment and knowing nothing about the historical antecedents, one might be convinced that all forms of regulation hitherto attempted have been abject failures. Yet in most instances the present-day problems of regulation have been long in maturing. Positions taken in regard to these problems at one time may have been entirely reasonable in the light of conditions then obtaining. They are wrong or questionable now because the fundamental presuppositions have changed. For this reason among others, in the present writer's opinion, Dr. Bauer's book cannot be wholeheartedly recommended as a text-book to students who are getting their first introduction to the problems and policies of regulation. If the lack of an adequate text-book dealing with local utilities makes the choice a hard one, the use of Dr. Bauer's book, with its preoccupation with present-day difficulties and its subtle bias toward consumers' interests, should at least be matched by the parallel use of one which is less given to a rehearsal of difficulties and which has a subtle bias in behalf of the utilities.

Professor Clark's book is essentially different in character. Although about half the volume is given to a treatment of utility regulation, it is really a treatise on institutional economics. In the course of an examination of the various forms of control to which business is subjected, he elaborates some-

what more fully the present trend of public utility control. For his purposes, the treatment is entirely adequate and is one to be recommended heartily to more advanced students, specialists, or lay readers. This review will be restricted to subjects covered by Professor Clark in common with Dr. Bauer.

What Is a Public Utility?

Before coming to the main point in Dr. Bauer's analysis of the problem of making public utility regulation effective, a few observations are necessary to get his orientation in regard to certain fundamentals. In an introductory chapter he gives his conception of the nature of a public utility. (It is a legal concept.) Public utilities, he says, are industries with respect to which special regulation has become firmly established. It should be noted that special regulation is distinguished from general regulation under the police power to which all industries may be subjected. The heart of such special regulation is the governmental power to fix prices, as first recognized in the Munn case. A merit of this treatment is that all public utilities are treated as fundamentally of the same character. Whatever differences may exist among them from an economic point of view, they belong to the same order of legal phenomena. The author correctly concludes that the possession of special privileges, such as franchises and the power of eminent domain, does not make a business a public utility, but rather that the recognition of a public utility status is a condition precedent to the granting of such privileges.

What, then, causes the status to be legally recognized? It is not the existence of economic monopoly, although that will help. Rather it is the recog-

nition that large numbers of people are dependent upon such service. Abuses may make this matter of dependence clear to people, because dependence is a matter of feeling. The basic reason for regulation "is not the existence of monopoly itself but the importance of the service furnished, whether by a monopoly or by competitive concerns" (p. 7). And again: "A broad survey of the development of regulation will show that the fundamental characteristic of any business subjected to regulation is its importance to the community" (p. 6).

In thus emphasizing that the distinguishing feature in the development of public utilities is the importance of the service, Dr. Bauer is able to interpret the existing agitation with respect to the regulation of housing, milk supply, and coal supply as that of "public utilities in the making." Although this phrasing is quite apt, it may be questioned whether this does not depart somewhat from the true concept. A feeling of dependence as a psychological fact may upon analysis be found to rest upon two underlying conditions: (a) the recognition that a given service is indispensable to civilized life, and (b) the recognition that the service tends to be monopolistic so that the consumer has no alternative open to him.² Under these conditions, special regulation involving the control of price will be necessary.

Dr. Bauer is right in saying that effective regulation depends upon a clear understanding of the proper scope of price control. This may be one of those neglected fundamentals which frequently mars the superstructure of regulation. It is generally recognized that,

in the exigencies of war, public authority was extended further than ever before in our history. And a major political, if not an economic, policy of the post-war adjustment has been the deflation of public authority along many lines. Governments are not entirely exempt from the principle of economy. The state should economize coercion. Whenever the price-fixing function may be left free without endangering essential interests, competition rather than regulation should be encouraged. Is utility regulation ineffective because we have brought too many different industries within the concept of public utility? The writer agrees that a good anchor for effective regulation is consumers' dependence, but it should be definitely earmarked as a dependence based upon a combination of monopoly and essentiality of the service.

Professor Clark also discusses "the basis of 'public interest' in industry" (p. 298 *et seq.*) and appears to come to the same conclusion by a somewhat different method. He points out that it is necessary to recognize "different kinds of public interest, justifying different types of regulation," that public utility regulation is one of these types with price control as its economic function, and that this restricts the concept of public utility to those industries where there exists "consumers' disadvantage."

Rules of Rate-Making

Dr. Bauer's chief purpose, however, is to criticize regulation. He does this by showing the difficulties which have hindered effective regulation, "the vague principles," "indeterminate facts," "undefined methods," and "cumbersome rate procedure." He proposes, then, "to cut through the tangle" by present-

² Cf. Glaeser, M. G., "The Meaning of Public Utility," JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS, Vol. I, pp. 176-188.

ing a plan which will render rate-making a definite and automatic process, so that both sides "will readily accept the fundamental proposal of this work." After discussing certain preliminary matters in regard to the purposes of regulation which bring out well the importance of accounting for purposes of effective control, the fundamental defect in existing arrangements is traced to the fact that statutes do not define the principles, policies, methods, and machinery by which reasonable rates may be fixed and maintained. This represents an attack upon the common-law rule of reasonableness which was generally placed in the statutes upon the theory that commissions were better fitted than legislatures to develop a scientific regulatory program which would fit the facts. Perhaps the remedy for present ineffectiveness is, as Dr. Bauer suggests, a statutory rule of rate-making; but it should be recognized that the drafting of a statutory rule is possible at the present time only because we have learned much during the long period of discussion and experimentation which has been a by-product of commission regulation.

Dr. Bauer rightly states that the problem of securing effective regulation by a statutory rule of rate-making hinges upon clearing up what is meant by the *judicial* rule of rate-making, first announced in *Smyth v. Ames*, of a "fair return on fair value." It is interesting to note that in Professor Clark's treatment this formula is likewise basic. Dr. Bauer states that it is the function of the legislature, and not of the courts, to define what is a fair return upon the fair value. Because the legislature has not been definite, the commissions have been intimidated by the courts, while the courts have been *indefinite* for fear of encroaching upon the legislature.

Rate-making, which includes the definition of a rate base and a rate of return, is a legislative function. It is one organic process, the wisdom of which does not concern the courts, although they set the limits upon legislative action. What is needed, therefore, is greater definiteness on the part of the courts as to the limits of legislative action and greater definiteness on the part of the legislatures as to the methods and principles which their agents, the commissions, should use in fixing reasonable rates.

Thereupon Dr. Bauer launches into an analysis of court decisions upon valuation, from which he concludes that "there is no reason why the legislatures and the commissions should not proceed with the formulation of definite principles of valuation to be applied to existing investment. Within broad limits the legislatures are free to determine policies and provide methods of regulation which will bring order out of existing chaos, and place regulation upon a permanent and workable basis." The conclusion is essential to his thesis.

This chapter, although interesting and informative, is, in the present writer's judgment, the least convincing in the book. The author's evident purpose is to show that the legislatures need not fear the courts; that the zone within which reasonableness lies is so wide that a rate-making rule can be drawn which will satisfy both the public and the utilities. His technique is to prove that any inconvenient statements by the court which might imply less latitude for the legislature are mere *dicta*. To understand the situation, one must appreciate the sardonic humor with which lawyers are prone to overwhelm the layman, particularly the economist, who dares to trench upon legal preserves, by proving to him that his cherished conclu-

sions rest only upon "dicta," statements which are not necessary for the decision of the case. Any mere layman's analysis of the import of judicial decisions can thus be made to fade into a legal Nirvana where nothing matters. Dr. Bauer has profited by his experience, and his methodology in this chapter is designed to foil his accusers. But the result is not convincing.

The recent decision of the United States Supreme Court in the Indianapolis Water Case¹ is sure to lead to a different interpretation. In that case it becomes very clear that the majority of the United States Supreme Court follows the general price trend in its interpretation of "fair value," and that under present conditions "spot cost of reproduction" must be given the predominant weight. This decision is certain to leave less latitude for legislatures in formulating a reasonable rule of rate-making.

What should be the rate base in Dr. Bauer's proposed rule of rate-making? The question is answered in a chapter contrasting the investment and cost of reproduction standards of valuation in their relations to changing prices. Previously the conclusion was reached that existing investments and future investments must be separately treated, that it will be necessary to clear up doubts and uncertainties of the past through an appraisal of existing properties, but that the rule for future investments should be the reasonable cost of construction and that this can be agreed upon. The effect of changing price levels upon the cost of reproduction is such as to make its use for rate-base purposes highly disadvantageous. A prime requisite for effective regulation is a fixed rate base, and hence "the only reasonable course is to base the valuation of existing investments on the

actual original cost of the properties with a deduction for depreciation" (p. 137).

Dr. Bauer finds, however, that this procedure might work an injustice upon stockholders, and so he suggests an initial adjustment of the rate base. The essentials of his plan are given in the following paragraphs (pp. 126-127):

The fact, nevertheless, should be squarely faced that while the bondholders have deliberately and definitely accepted a limited return, the stockholders did not assume any such direct fixed conditions. They did undertake certain risks and they did provide special protection for the bondholders. While they devoted their money to the enterprise with the limitations of a regulated return, the conditions and terms of the investment were never clearly prescribed. While presumably they might have been limited to a definite and fixed return, this was not explicitly stated in any of the laws of the country.

For these reasons, at least, some adjustment may be made on the stockholders' investment. This, however, should be strictly limited to the stockholders, and not allowed on the properties financed through the issue of bonds. The practical procedure in such an adjustment would be, first, to make a definite determination of the net investment equal to the original cost of the properties less depreciation. From this amount would be deducted the face value of the various bonds outstanding. The balance would represent the original investment made by the stockholders. Then the time of issuance of the stock can usually be accurately determined from the corporate records, and the change in general price levels could be approximately ascertained through standard price curves. Then the original stockholders' investment would be increased by the percentage by which general prices have risen since the time of the issuance of the stock. By this adjustment the stockholders would be fully compensated for the change in price levels and the decrease in the purchasing power of money.

With this adjustment for stockholders' investment, the appraisal of exist-

¹ *Public Service Commission of Indiana v. Indianapolis Water Company*, 47 Su. Ct. 144 (1926).

ing properties at their original cost less depreciation can be made the starting point for a new régime in which the prudent investment becomes the future rate base.

The remaining issue is the deduction of accrued depreciation. This is another point at which Dr. Bauer's views diverge sharply from those generally held by public utility officials. The latter usually treat depreciation as deferred maintenance. The depreciation to be deducted from the cost new is equal only to the expenditures necessary to place property in first-class operating condition. Dr. Bauer's conception of depreciation is that of an accrued capital cost chargeable against past operations. Sums of money equal to this accrued cost have already been collected from customers and are now impounded in a depreciation reserve, subject to investment in outside securities or in plant extensions. When depreciation reserves are invested in the property, they must be deducted to ascertain net investment.

The logic of this argument, especially from an accounting point of view, is correct. The following questions may, however, be raised: (1) Is it economically correct to define depreciation as expenditures used to maintain the productive capacity of physical property regardless of price changes? (2) Is it economical to set aside depreciation on a straight-line basis, as Dr. Bauer suggests? It would seem that depreciation should be measured in terms of the cost of property and not of the cost of its reproduction. This is certainly more in accord with the general theory of Dr. Bauer's plan. Would it not be better, also, as some commissions now require, that companies pay an arbitrary interest return upon depreciation reserve balances and estimate the annual deprecia-

tion requirement on a sinking-fund basis?

It should be noted that Dr. Bauer is consistent and treats as depreciation any falling off in the market value of land at the time of its disposal. At this point, he is very close to recognition of the "going concern" theory of regulation.⁴ In order to get the accrued depreciation on existing properties, Dr. Bauer contends, the initial appraisal should establish the figure through consideration of elapsed life of units as ascertained by a combination of life-table and inspection methods. The amount of the original cost as adjusted should then be set up on the books, the accrued depreciation should become the opening credit balance in the depreciation reserve, and the outstanding securities should then be adjusted to the resultant net investment.

As to special items in valuation, sometimes spoken of as intangibles, Dr. Bauer concedes that some leeway may be given in special cases. Indirect construction costs and organization expenses, the so-called overheads, should be included in the appraisal; an allowance for working capital should be made equal to the net current assets; good-will and going value (the "net deficits" theory) are dismissed as legally inadmissible, although some estimate may be made of the cost of obtaining customers. In all these adjustments a rule of reason should be applied which will resolve all disputed questions as to the past and provide a permanent rate base for the future.

In Professor Clark's view, with his emphasis upon the institutional background of control, the proper starting

⁴Cf. Glaeser, M. G., "A Focal Point of Conflict in Judicial Opinion on the Valuation of Public Utilities," *JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS*, Vol. I, pp. 250-256.

point of regulation is the recognition that public utility property must be distinguished from ordinary commercial property, since "the public right to a certain kind of regulation is definitely reserved and qualifies the property rights of the owner" (p. 349). Owners are entitled to charge reasonable rates, and regulation begins to take their property when it forces rates below a reasonable level. Thus he concludes that "confiscatory and unreasonably low rates are one and the same, the only practical difference consisting in the degree of certainty required for proof, and the question which party is to be given the benefit of the reasonable doubt that arises in matters involving discretion and judgment" (p. 349). Professor Clark then proceeds to examine the "rule" of value in *Smyth v. Ames* and dismisses the legal theory of fair value as "undeniably groping and confused." His treatment of details, particularly of the development which the rule has undergone at the hands of engineers, commissions, and courts, is somewhat better than Dr. Bauer's. Fundamentally, he comes to the same conclusion, for he quotes, with apparent approval, Justice Brandeis' rejection of the rule as "legally and economically unsound."⁵

Rate of Return

The rate of return should be made equally definite. Dr. Bauer suggests a single uniform rate (7%) to be applied to the existing investment for all companies. If differences between companies are to be recognized, this rate should be definitely fixed for each company. This definite rate of return

would not be changed presumably so long as existing properties remained in the rate base. As to future investments, however, the rate of return should be based upon the actual contractual cost at which funds were obtained. Funds secured through bond issues would receive a return equal to the cost to the company of such borrowed capital. Funds secured through preferred stock issues would receive a return equal to the rate named in the certificates. Very little money, Dr. Bauer thinks, would be obtained through the sale of common stock because under the statutory rule of rate-making the income would be assured and risks would vanish. Hence the reason for common stock issues would disappear. Nevertheless, if common stock is sold, he would favor legislation providing for a definite dividend return upon the common stock; or practically the same result could be achieved through an administrative order fixing the return which will be allowed upon the common stock. Thus it appears that Bauer's proposal would carry the "cost of service" theory of rate-making to the point of applying it also in the determination of the rate of return.

Professor Clark's discussion of the rate of return is rather brief and bound up in several places with his discussion of operating efficiency. He makes no definite proposal, preferring rather to illuminate the whole subject of what is a reasonable earning power by exposing the difficulties, inconsistencies, and inconclusiveness of the present mode of procedure, and by letting fall suggestions as to alternatives which might be adopted. He recognizes with Dr. Bauer that the problem of adjusting the return to the changing purchasing power of money is an essential factor.

The remainder of Dr. Bauer's book

⁵*State of Missouri ex rel. Southwestern Bell Telephone Co. v. Public Service Commission of Missouri*, 262 U. S. 276, 289 (1923).

is devoted to a brief discussion of rate schedules, the attainment of financial stability under the plan, and the manner in which his plan clears the way for a study of operating and service problems by the utilities in cooperation with the commissions.

It is difficult to evaluate Dr. Bauer's proposals from a practical point of view because of the tremendous scope of the utility problem. Something akin to his program was contained in a suggestion made in 1915 to Director Prouty of the Bureau of Valuation of the Interstate Commerce Commission by the Railroad Commission of Wisconsin. Unfortunately, no estimate of the original cost of existing items of railway property was made; only its cost of reproduction was determined on the basis of a five-year average of prices. Dr. Bauer's scheme also resembles a good deal the service-at-cost franchises under which a number of urban electric railways are operating. Unless recent court opinions divert the trend of commission regulation, this trend is in the direction of service at cost for the local utilities. The Transportation Act of 1920 makes a begin-

ning in the same direction for the railway system of the country. Dr. Bauer, it seems, would apply the plan both to the monopolistic local utilities and to the semicompetitive steam railway utilities. Professor Clark, on the other hand, makes a distinction between the two, and bases his scheme of control upon the operating cost of some representative road in the case of semicompetitive industries (pp. 373-381).

Whatever the merits of these proposals may be from the standpoint of practice, it is well to have the question raised whether regulation is not losing some of its effectiveness on account of a too close following of ill-considered court opinions. By way of summary it is, perhaps, not an unwarranted statement that Dr. Bauer is somewhat too pessimistic regarding the past accomplishments and future prospects of the state commission system of regulation, and that he is somewhat too optimistic of what can be accomplished by means of a statutory rule of rate-making. The experiment would certainly be interesting if some state, like Wisconsin, with a conservative and efficient public utility commission would make the attempt.

DEPARTMENTS

The departments of the JOURNAL are edited specifically with regard to their interest to the readers who are especially concerned with the economic problems of land and public utilities. For the most part the material for the departments will be prepared by members of the staff of the Institute for Research in Land Economics and Public Utilities.

BOOK REVIEWS

This department contains critical reviews and brief notices of new books of interest to the readers of the JOURNAL.

- Report of the Land Inquiry Committee of the Liberal Party,
1923-1925, "The Land and the Nation"
C. S. ORWIN and W. R. PEEL, "The Tenure of
Agricultural Land".....*George S. Wehrwein* 95

SUMMARIES OF RESEARCH

In this department are given brief accounts of investigations in progress and statements of tentative conclusions reached in the course of work by the staff of the Institute and others associated with the Institute's work.

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COMMENTS ON LEGISLATION AND COURT DECISIONS

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BOOK REVIEWS

Report of the Land Inquiry Committee of the Liberal Party, 1923-25. *THE LAND AND THE NATION*. London: Hodder and Stoughton, Ltd., 1925. pp. 588. 1 s.

Orwin, C. S., and Peel, W. R. *THE TENURE OF AGRICULTURAL LAND*. Cambridge: Cambridge University Press, 1925. pp. 76. 3s. 6d. net.

In the October, 1926, number of the *JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS*, J. P. Maxton has reviewed the British land situation and has stated clearly the circumstances which have created the demand for the nationalization of the land of Great Britain. The Land Inquiry Committee of the Liberal Party has issued its *Rural Report* under the title *The Land and the Nation*, which supplies more of the political background of this movement.

In this report the committee deplores the urbanization of the country and criticizes "low-cost farming" and the enormous importation of food stuffs. It must also be remembered that the kingdom is faced with unprecedented unemployment. In August, 1925, there were more persons out of work than were engaged in agriculture (p. 10).

As a solution for the problem the committee rejects tariffs or bounties as "out of the bounds of practical politics." Neither will they permit farmers to reduce the intensity of cultivation to meet low prices. This would not help the problem of unemployment or that of decreasing food production. The remedy is sought in a change of tenure.

The development of the present system is reviewed. A threefold function has developed—land owning, land operation, and labor. The landowner's func-

tion is held to be that of supplying agriculture with its permanent capital—land, buildings, reclamation and other meliorations that tend to merge with land. He is also to furnish the leadership in agriculture of which Coke of Norfolk was the classic example. But it is claimed that the landlord has failed to perform his function. "The Coke of Norfolk argument breaks down in the absence of evidence that landlordism has continued to be inspired by Coke's spirit, directed by Coke's ability, or supported by Coke's ample fortune" (p. 229). The landlord has failed to supply capital and is accused of putting the emphasis on sport. He is no longer a rural leader nor does he carry on reclamation or other improvements in the technique of agriculture.

Orwin and Peel (p. 1) say that he has become a mere rent receiver because all tenant legislation since 1883 has tended to restrict his activities and reduce his functions.

On bringing together from various parts of the *Report* items bearing on this subject, it appears that the committee expects tenure reform to accomplish the following:

1. To raise production to a higher level;
2. To bring about a division of land into more economical units;
3. To provide the permanent capital for agriculture which landlords are now failing to provide;
4. To give security of tenure to the farmer;
5. To create an agricultural ladder for the laborer.

To the American mind it would seem that the proper remedy would be to provide a means of selling the land to owner-occupiers, as was done in Denmark. But this is ruled out both by the

Report and by Orwin and Peel. It is claimed that owner-occupancy is no guaranty of efficient agriculture. What is needed is absolute security for those who cultivate the land and at the same time insistence "on good cultivation as the prime condition of occupation" (p. 238). Common self-interest is not considered sufficient pressure to secure "high farming." It is claimed that a system of owner-occupancy will perpetuate the present distribution of lands (p. 422), will not prevent the restoration of the old system, will not create incentives for closer settlement, and will bolt the door for the laborer. "It would leave wholly unsatisfied the deep-lying sentiment that the land belongs to the people" (p. 428).

For almost two centuries the British farmer has rented land and he does not wish to own land now. At the present time, circumstances often force him to ownership against his will. He is frequently at the mercy of speculators who ask inflated prices for land or else force him to move elsewhere. Having to tie up his capital in land, he is unable to equip his farm properly. Here is real undercapitalization, as pointed out by Orwin and Peel. It is also argued that if the state lent money at a low rate of interest this would be an additional incentive to pay high prices for land.

Although Denmark is held up as an example of state action, it is not deemed advisable to follow its example and give the freehold to the cultivator. The *Report* claims that in Denmark many of the aims had been accomplished before the tenure reform took place. Denmark is a rural country in contrast with urbanized Britain. At the time of the reform in Denmark, holdings were already of the proper size; large estates were being broken up. Moreover, the Danish freehold is a mere concession to

the demand for ownership on the part of the peasants and is only a modified form of ownership at the best (pp. 425-427).

The plan proposed is called Cultivating Tenure. Only agricultural land is to be affected by this plan, although some of it may have site value. The proposal is to nationalize the land by purchasing it and thereby substituting the state for the private landlord, and to have the state perform the functions the landlord once performed. This might appear to be very advantageous to landlords now feeling the effects of the agricultural depression. However, the crux of the matter lies in the method of evaluation. The landlord is to be paid a value, or an annuity, based on a *fair net rent*. In arriving at the net rent the tenant is to subtract (and to pay) the minimum wage fixed for the area in which the farm is located. "The first principle of agrarian policy must be a living wage for agricultural workers." If the rent fixed by the court does not permit the payment of the minimum wage, the court shall reduce the rent. The capitalization of rent into land values is said to be a "mere matter of arithmetic" by Orwin and Peel, who use $22\frac{1}{2}$ years' purchase as the basis for their illustrations (pp. 44-45). However, according to the *Report*, the "years' purchase" seem to vary from 24 to 45 years (pp. 319-320).

However, it is recognized that land has two values, "a definite, ascertainable, agricultural value, and the other an indefinite speculative value. The second is compounded of monopoly value, amenity value, prestige value, excess sporting value, and potential site value." It is proposed to rid agriculture of the burden of "unreal values" and have the state pay the present owners on the basis of the first only. Some allowance

is to be made for game values if these are of importance to the tenant. Provisions are also made for giving the owner some of the site values if these are actually realized (pp. 35 ff.). Critics of the plan have pointed out that this means the confiscation of a large element of land value.¹

The tenant at present on the farm will remain on the land. The rent fixed at the beginning of the lease becomes permanent until there is a break in tenancy. At death, the land passes to the widow, son, or other near relative who before the testator's death has been resident and working on the farm or under training in succession.

The landlord's function is to be assumed by a County Agricultural Committee to be elected on the widest possible franchise. The primary work of this committee will be to secure "good cultivation." They are to have the right to terminate tenancies if the farmer is not competent, to change the size of farms, and to do many other things in the interest of agriculture discussed under "The superstructure of reform."

Although much is promised concerning the agricultural laborer, the measures proposed seem rather vague. It is claimed that the desire for better cultivation will stimulate the demand for labor and thereby reduce unemployment. All these laborers will be paid the minimum wage. More land is to be made available for settlement, and provisions are made for laborer's half-acres (pp.

406 and 463). From here it is hoped he can step to "full-time holdings."

Several questions arise in the minds of American readers. It seems that the plan puts considerable power into the hands of an elective body of officials who must please their constituency in order to keep in office. Orwin and Peel, however, suggest a more centralized authority less dependent upon popular votes. Even granting Mr. Maxton's contention that the British civil service is such that "influence," "graft," or "pull" are not to be feared, the question still presents itself, how will these officials be able to raise the level of production as long as economic conditions favor "low-cost" farming? If they have the right to remove a tenant for poor farming, wherein has he any more security of tenure than under the prevailing system of private tenancy? It is claimed with good reason, however, that the tenant will have the upper hand. Rents are fixed over long periods of time. If economic conditions should warrant a reduction in rent, the tenants can threaten to leave and force a reassessment. If conditions are in his favor, rents will remain at the old level. "The system binds society and leaves the tenant free."²

In closing, it might be pointed out that in the English situation there is a lesson for all landlords. Whenever their functions are reduced to mere rent-receiving, there is likely to be a demand on the part of society that the state take over this operation. The tax collector can do it as well as the landlord.

G. S. WEHRWEIN

¹ C. Dampier Whetham, "The Land and the Nation," *The Economic Journal*, March, 1926.

² C. Dampier Whetham, *op. cit.*

SUMMARIES OF RESEARCH

PUBLIC UTILITY FINANCING DURING THE THIRD QUARTER OF 1926

ALL public utility securities of all maturities sold during the third quarter of 1926 at a price to yield 5.62% per dollar and 5.69% per issue (Table I). The yield on the dollar was somewhat higher in the third quarter of 1926 than in the second quarter, 5.62% as compared with 5.52%. There was a slight decrease, however, in the yield per issue, dropping from 5.72% in the second quarter to 5.69% in the third. In the third quarter of 1926, eleven issues of notes sold at a price to yield a return on the dollar of 5.91%, a material increase over the return in the second quarter of 5.65% on the dollar for fourteen note issues. *Bonds and notes only* sold at a price to yield 5.45% on the dollar and 5.60% on the issue as compared with 5.46% and 5.69% in the second quar-

ter of the current year. Long-term securities sold at a price to yield 5.57% on the dollar and 5.65% on the issue. Corresponding figures for the second quarter were 5.53% and 5.74%. The yield on short-term securities was considerably higher than it was for this type of security issue during the second quarter. In the third quarter of 1926 securities of this class brought a return of 5.90% on the dollar and 5.73% on the issue. In the second quarter the return on short-term securities was only 5.37% on the dollar and 5.64% on the issue.

The rates on the various issues offered ranged from 4.80% to 7.00%. Of the 66 issues of interest-bearing obligations recorded, 29 issues (44%) were offered at a price to yield 6.00% or more. These 29 issues had a total

TABLE I. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW
PUBLIC UTILITY SECURITY ISSUES

YEAR	ALL TYPES OF SECURITIES						BONDS AND NOTES	
	All Maturities		Long Term		Short Term			
	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield
1925	5.58	5.81	5.66	5.83	5.55	5.86	5.56	5.78
1st Quarter.....	5.46	5.78	5.65	5.81	5.32	5.77	5.48	5.79
2nd Quarter.....	5.72	5.87	5.74	5.86	5.58	5.94	5.65	5.82
3rd Quarter.....	5.53	5.77	5.50	5.77	5.68	5.73	5.45	5.76
4th Quarter.....	5.77	5.82	5.77	5.80	5.76	6.02	5.65	5.77
1926.....								
1st Quarter.....	5.65	5.78	5.63	5.75	6.26	6.02	5.53	5.71
2nd Quarter.....	5.52	5.72	5.53	5.74	5.37	5.64	5.46	5.69
3rd Quarter.....	5.62	5.69	5.57	5.65	5.90	5.73	5.45	5.60

par value of \$79,695,000, or 34% of the total par value of all such obligations issued.

The total volume of public utility financing, according to an analysis based upon the records of the *Commercial and Financial Chronicle*, is much smaller for the third quarter of 1926 than for any preceding quarter of the current year. In the second quarter of 1926 the volume of public utility financing reached its peak with an index number of 344. The material decrease in the volume in the third quarter of 1926 is shown by the fact that the index number for this period was only 159.

Table II shows that the high monthly volume of financing recorded for the first six months of 1926 continued through the month of July. There was a sudden drop in volume in the months of August and September, the index number for the latter month falling as low as 38.

All corporate financing for the first nine months of 1926 amounted to \$3,-

924,531,309. The total volume of public utility financing for the same period was \$1,528,155,913 (38.93% of all corporate). Figures for the corresponding period in the year 1925 show a total volume of corporate financing of \$3,472,205,866, of which public utility financing, with a total par value of \$1,311,833,247, constituted 37.78%. During the months of July to September, 1926, inclusive, all corporate financing amounted to \$1,046,538,213, 31.26% of this total being represented by the security issues of public utility companies. An analysis of similar statistics for the second quarter of the current year reveals a total par value of all corporate securities of \$1,877,993,096 and a total par value of public utility security issues of \$707,631,840, 37.68% of the total volume of corporate issues.

An analysis of the volume of public utility security issues based upon the type of utility issuing the security shows that the most marked decrease in

TABLE II. INDEX NUMBER OF VOLUME OF PUBLIC UTILITY FINANCING, 1919-1926*

	1919	1920	1921	1922	1923	1924	1925	1926
By Months								
January.....	100	67	55	46	122	112	199	173
February.....	48	28	25	47	66	89	172	125
March.....	25	27	25	43	94	78	144	115
April.....	5	38	25	50	64	112	69	182
May.....	15	38	35	150	66	233	103	230
June.....	26	20	9	96	92	122	118	181
July.....	41	25	115	44	21	104	90	177
August.....	20	11	33	22	40	62	93	58
September.....	54	44	34	147	34	77	110	38
October.....	24	33	33	77	59	112	92	.....
November.....	8	21	119	43	161	69	102	.....
December.....	20	63	53	54	135	111	153	.....
By Quarters								
1st Quarter.....	100	71	61	80	164	162	299	240
2nd Quarter.....	27	56	41	172	129	271	168	344
3rd Quarter.....	67	47	105	123	55	141	170	159
4th Quarter.....	30	68	119	101	206	169	201	.....
By Years.....	100	107	145	212	246	330	373	.....

*Volume for January, 1919, First Quarter, 1919, and Year 1919 used as basis for computing index numbers for months, quarters, and years, respectively. Compiled from the records of the *Commercial and Financial Chronicle*.

the total par value of securities issued was reported by the telephone and telegraph utility. That utility reported securities issued during the second quarter of the current year with a total par value of \$198,050,000, or 28.1% of the total par value of all public utility issues. During the third quarter the telephone and telegraph utility issued only \$35,254,044 worth of securities, representing 10.8% of the total par value of all public utility issues. There was, likewise, a considerable decrease in the volume of electric light and power utility security issues from \$276,181,000 in the second quarter to \$115,529,000 in the third. The volume of

electric light and power security issues amounted to 39.0% of the total par value of all public utility security issues in the second quarter and 35.3% of the total par value in the third.

The total par value of public utility stock recorded in the third quarter of 1926 was something less than half of that recorded in the second quarter of the same year, \$85,962,711 as compared with \$194,724,300. In both quarters the volume of stock constituted about the same proportion of the total volume of public utility issues, 27.4% in the second quarter and 26.3% in the third.

MARION C. RICHTER.

VOTING PROVISIONS IN PUBLIC UTILITY PREFERRED STOCK ISSUES OF 1925

IN ORDER to discover the facts with respect to the character of voting rights on preferred stock issues of public utilities, records of such financing during 1925 have been subjected to analysis. There are records showing 80 instances of publicly offered issues of public utility preferred stock. It has been possible to secure the necessary information with respect to 67 of this number for the purposes of this analysis.

The facts have been obtained principally from prospectuses and circulars,

but in a number of instances this information was either not given or not given in sufficient detail. Moody's and Poor's manuals on public utilities, charters, and state laws were consulted to supply the missing information.

Out of this total of 67 cases, 17 issues carry voting rights equal for all intents and purposes to those of the common stock. In 12 of these instances the provision is "equal voting rights with other issues" or "equal voting rights with common." In three cases the provision is that each share of preferred shall have one vote, which may be assumed to be the same as "equal voter's rights." Two cases restrict voting power to "one vote per share in the election of directors."

Contingent voting privileges are accorded the holders of 44 out of the 67 issues examined. The character and distribution of the character of the right and the contingency are set forth in Table II. The most common provision

TABLE I. DISTRIBUTION OF 67 PUBLIC UTILITY PREFERRED STOCK ISSUES OF 1925 ACCORDING TO VOTING PROVISIONS

Total.....	67	100.00%
Voting.....	17	25.37
Non-voting.....	6	8.96
Contingent.....	44	65.67

appears to be that of equal voting right and the most common contingency, a default in dividends for four quarters or their equivalent. The second most common provision is the power to elect a majority of the board of directors and this again is most frequently contingent upon default in dividends for

four quarters or its equivalent. In two cases, preferred holders obtain exclusive rights to vote after four quarterly defaults. One less than a majority of the directors may be elected by the preferred holders in two instances and then only after two years' default, while in two other instances preferred holders

TABLE II. DISTRIBUTION OF 44 PREFERRED ISSUES OF 1925, ACCORDING TO CHARACTER OF CONTINGENT VOTING PRIVILEGE

DEFAULT IN DIVIDENDS FOR A PERIOD OF:	TOTAL	EQUAL VOTE WITH COMMON	EXCLUSIVE VOTING PRIVILEGE	REPRESENTED ON BOARD OF DIRECTORS			MISCELLANEOUS
				Elect Majority	Elect One Less Than Majority	Elect Two Directors	
Total.....	44	26	2	10	2	2	2
I. 2 Quarters or equivalent.....	8	7					1
2 Quarters.....	2	1					1||
2 Quarters*.....	1	1					
2 Quarters†.....	1	1					
Arrears—\$3.50.....	1	1					
Excess—\$3.50.....	1	1					
More than ½ annual.....	2	2					
II. 4 Quarters or equivalent.....	31	18	2	9		2	
4 Quarters.....	20	10	2	8			
4 Quarters‡.....	1	1					
1 Year.....	7	5				2	
Next annual meeting.....	1			1			
Amount aggregating 7%....	1	1					
\$7 per share.....	1	1					
III. 2 Years or equivalent.....	5	1		1	2		1
2 Years.....	1	1					
Fail to pay quarter and 8 succeeding quarters.....	2				2		
24 months§.....	1			1			
When \$3.60 not set aside during 24 mo. (\$1.80 paid per annum).....	1						1 [¶]

* Exclusive vote on directors after 4 quarters' default.

† Exclusive vote on directors after 8 quarters' default.

‡ Exclusive vote after 8 quarters' default.

§ Default 12 months, limited as set forth in charter.

|| Each share preferred, 10 votes.

¶ Elects one-third of directors.

may elect two directors only and this after default for four quarters.

In a number of cases the penalty for default is cumulative. Thus, in case (a), preferred has equal vote after two quarters' default and exclusive vote on directors after four quarters' default. Similarly in (b), after two quarterly defaults equal vote is granted and after eight quarters' default exclusive vote on directors. In case (c), equal vote is granted after four quarters and exclusive vote after eight quarters. One instance of unusual character provided for the election of one-third of the directors after two years' default and another that each holder of preferred

stock should receive 10 votes per share.

Six issues out of the total of 67 may be designated as non-voting, although all but two of these have limited voting privileges. This privilege may be exercised in two instances in case of proposals to amend the charter or certificate of organization affecting the rights of the preferred stockholders. In another case the preferred holders vote only on the question of dissolution, and in the last case only in the event of a proposal to increase outstanding preferred stock or to issue stock with prior rights, when two-thirds consent is required.

MARGARET HAHN

A CORRECTION

THE Editors received a letter from Mr. J. L. Driscoll, Treasurer of the State of South Dakota, to the effect that a statement on page 286 of the July, 1926, issue of the JOURNAL in the article entitled "State Policies in Agricultural Settlement," by B. Henderson, had injured the credit of the state. The article was a brief comparative survey of what was being done by states toward placing settlers on the land. In discussing the experience of South Dakota the statement was made that "South Dakota was unable to meet the interest due on outstanding bonds and the affairs of the Rural Credit Board are being liquidated." The matter was submitted to the author of the article for investigation and report.

It appears from the author's memorandum, printed below, that the statement in question gave a wrong impression of the real situation. The Editors are therefore glad to publish this correction with the author's memorandum.

MEMORANDUM

The Rural Credit Law of South Dakota (Chap. 14—Revised Code of 1919) gave the Rural Credit Board power to sell bonds guaranteed by the state and to issue warrants and to prescribe rules and regulations concerning the manner in which such bonds and warrants were to be sold, paid, and retired. It also provided that if at any time it should appear that the Board did not have sufficient funds in the treasury to pay its bonds or warrants or the interest at maturity or when due, it should be the duty of the Tax Commissioner, upon request of the board, to levy a tax upon all the taxable property of the state to pay the same when due, the tax to be extended and collected in the same manner as the other taxes.

In January of 1925 a joint investigating committee was appointed from the Senate and House of the State of South Dakota to examine the Rural Credits Department of the state. The report of this commission was submitted February 24, 1925, and printed in the *Journal* of the House (South Dakota) 19th Session, 50th day, page 717. The following information was found in the above report.

The Rural Credit Board exercised extreme leniency in collecting interest and amortiza-

tion payments on outstanding mortgages. This policy resulted in a shortage in the interest fund for paying interest on outstanding bonds. However, there was a trust fund in the treasury of the Board accumulated from the sale of bonds and the collection of payments on principals and held for the purpose of paying off the bonds at maturity. The Board tided over its interest difficulties by advancing over \$3,000,000 out of the trust fund to the interest fund (page 737 of the *Report*).

The Board persisted, in the face of a restraining order from the supreme court of the state, in banking its funds in violation of the legal regulations for making such deposits. During the agricultural depression 88 of the banks holding the deposits of the Board were closed and about \$900,000 of the funds of the Board became frozen (page 739). It is also true that some losses were incurred, probably amounting to \$500,000 (page 741).

The Board was further embarrassed in that the reserve fund created by the difference between interest charged for the loans and the interest on the bonds, did not, as was expected, cover the operating expenses of the Board. Selling bonds at a discount also added to the indebtedness of the Board.

We have no record showing that the State Tax Commission was called upon by the Board to issue a special tax levy to provide funds to meet the Board's obligations. The Board postponed its insolvency by issuing more bonds and further involving the state in debt. The total bond issues amounted to \$47,500,000 and the outstanding loans on December 31, 1924, amounted to \$41,064,211.45 (*Report* pp. 734-735).

The joint commission reported on February 24, 1925, and on March 14, 1925, the old Rural Credit law was repealed and a new law was enacted (chap. 266, Session Laws of South Dakota, 1925). The Rural Credit Board was reorganized and new regulations

were prescribed for its activities. The State of South Dakota was pledged to pay interest and principal on \$47,500,000 and was, therefore, under obligations to carry on the affairs of the Rural Credit Board.

No farm loans may be granted by the new Board from the Rural Credit fund except from any surplus in the fund not required for current expenditures. No loan may be granted for a term of over 10 years nor to exceed 50% of the assessed value of the land.

The statement on page 286, July, 1926, issue of the *JOURNAL*—"South Dakota was unable to meet the interest due on outstanding bonds and the affairs of the Rural Credit Board are being liquidated"—inadvertently conveys a wrong impression. The old Rural Credit Board was not able, out of its interest fund, to meet the interest on outstanding bonds and had committed some irregularities in handling the funds at its disposal. It did not request a special tax levy but increased the indebtedness of the state by issuing more bonds. At the time of the enactment of the new law and the reorganization of the Board, the press throughout the country generally stated that the Board could not meet its obligations.

The actual truth is that the state is pledged and legally authorized to pay both principal and interest on the outstanding bonds. Under the new regulations, if Rural Credit funds are not available or sufficient for such purposes, the State Treasurer may issue emergency warrants to meet the obligations of the Board. The State Treasury is to be reimbursed for each emergency warrant out of the Rural Credit funds as they are collected. How much the state stands to lose through the operations of the old Rural Credit Board is not known at the present time.

B. HENDERSON (*signed*)

Assistant Economic Analyst

COMMENTS ON LEGISLATION AND COURT DECISIONS

CHANGES IN FARM TENURE, 1920-1925¹

THE increase in the percentage of tenancy since 1920 for the United States as a whole has been small. In 1920, 38.1% of the farms were operated by tenants, and in 1925, 38.6%. However, when the various sections and states are compared, it will be noticed that the increase was not uniform or universal. There was a decrease in the percentage of tenant-operated farms east of the Mississippi in all states except Wisconsin, West Virginia, the two Carolinas, Mississippi, and Alabama. There was also a decrease in all the Pacific states and in Nevada. The period 1920 to 1925 merely continued the trend in the direction of more owner-operation of farms in the New England and Middle Atlantic states. The same is true of the border states—Delaware, Maryland, Kentucky, and Virginia. West Virginia is in practically the same position as in 1920. Florida also decreased its percentage of tenant farms. On the other hand, the Carolinas, Mississippi, and Wisconsin continued their steady upward trend, and Alabama practically went back to the same figure it had in 1910. In Michigan, Illinois, Indiana, Ohio, and Georgia the general increase in the percentage of tenant-operated farms was reversed during the last five years.

West of the Mississippi, with the

exception of the Pacific states and Nevada, the situation is far different. The Great Plains states, already started on a striking upward movement of tenancy in the 1910-1920 decade, accelerated the pace in the last five years. Today every one of the Hundredth Meridian states has over one-third of its farms rented, and Texas and Oklahoma approach two-thirds. Practically all the Mountain states had a spectacular increase in the number of tenant farms, and the states lying on the Mississippi shared the general upward trend.

In studying the changes in the tenure situation from 1920 to 1925, it is well to distinguish between those states in which the total number of farms increased and those states where it decreased. Twenty-six states belong in the first class and 22 in the second. Omitting the manager-operated farms, the number of which has decreased everywhere (except in California), each of the two classes can be subdivided into three groups based upon the relative increase or decrease in the number of owners and tenants. After all, a percentage is a ratio, and this relationship changes as the various figures change. For instance, one of the outstanding facts in the tenure situation is the decline of manager-operated farms. In 1920, 68,449 farms were reported in this class; in 1925 only 40,755, a decrease of 40.5%. Unless these farms have been abandoned, they became either owner-operated or tenant farms and thus added to the number in either

¹Based on the preliminary figures released in press notices of the 1925 Census and subject to correction. Hence, most of the figures have been given in round numbers.

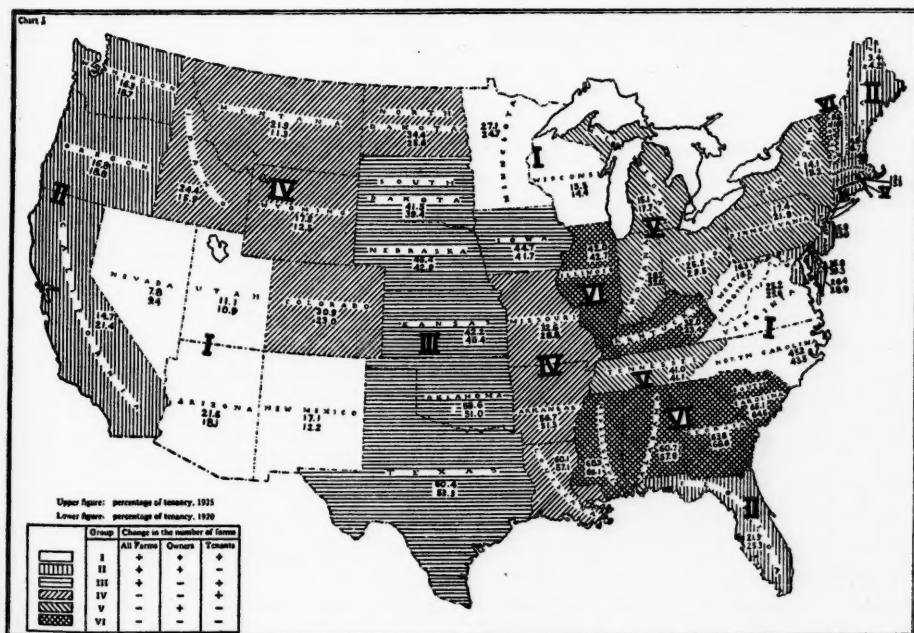
or both of these groups. Where the numbers involved are relatively small, a slight shift in tenure is often responsible for a noticeable change in the percentages. Even small errors in enumeration are therefore important. Tennessee, with a total of over 252,000 farms in 1925, lost 105 farms during the 5 years between the last 2 censuses. It lost 481 manager-operated farms and 166 tenant farms, but gained 542 owner-operated farms. This shift of a few hundred farms was sufficient to place the state among those with a decrease in tenancy.

However, when the states are grouped on the above basis, it is interesting to find that the tenure groups tend to be geographical groups (Chart I).

In Group I the total number of farms and the number of owner and of tenant farms have all increased. Whether the percentage of tenant farms has in-

creased or decreased depends upon the relative increase in the numbers of the three kinds of farms. Minnesota added over 9,000 farms since 1920, but almost 7,000 were tenant farms and only 3,000 were owner farms. Manager-operated farms decreased by over 800. Consequently, the percentage of tenancy has become greater. On the other hand, in some states the increase was greater for the owner-operated farms, and the percentage of tenancy decreased. Nevada and Virginia are examples. In a few cases the shift in the number of manager-operated farms was such that the percentage of tenancy increased in spite of a greater increase in the number of owners, as in Utah and West Virginia. Group I is scattered in three places, the Southwest, the Lake states, and the Virginias and North Carolina.

Group II consists of those states in which the total number of farms has increased, tenants and managers have



decreased but owners have become more numerous. It is noteworthy that New England, with the exception of Vermont and Rhode Island, has had an increase in the number of farms, thereby completely reversing the continuous trend since 1880 and 1890. Massachusetts is a good example. It had almost 1,500 more farms in 1925 than in 1920, but over 2,700 more owner farms. This is explained by a loss of 748 manager farms and 682 tenants. Group II extends along the Atlantic coast as far south as the Potomac. The Pacific states and Florida also belong in this group.

Group III has had an increase in the total number of farms but has had a heavy increase in tenants accompanied by a corresponding decrease in the number of owners and managers. This group consists of a solid block of states south of North Dakota but includes Iowa. All of these states have had a notable increase in tenancy. Texas added 29,000 farms since 1920 but lost over 18,000 owners and about 1,000 managers. However, it gained 49,000 tenants in 5 years! Thus the percentage of tenancy jumped from 53.3 to 60.4. All of these states lie in the section which was severely affected by post-war depression in agriculture. The fact that the number of owners failed to hold its own and that tenants increased so rapidly indicates a failure on the part of thousands of farmers to raise themselves on the agricultural ladder. In some cases it has meant a backward step.

Group IV flanks Group III on both sides and has even more striking characteristics. These states have had a *decrease* in the total number of farms, a decrease in the number of owners and managers but a notable *increase* in the number of tenants. Practically all

of these states are in regions where, under normal conditions, new farms were being created. However, during the last 5 years they did not even retain the farms they had in 1920. Montana lost almost 11,000 farms, almost 14,000 owner-operated farms, and 300 managers. On the other hand, there was a gain of 3,500 tenants, a graphic indication of the years of crop failure and the crisis which followed the World War. When the increase in mortgage indebtedness is added to the general increase in tenancy, the picture is even more vivid. Missouri, Arkansas, and Louisiana are also in Group IV, but here other factors are probably responsible for the situation.

Group V is the opposite of the last group of states discussed. In these states owners have increased in number while tenants have decreased, and the total number of farms has become less. Ohio is the center of this group and illustrates the situation. There was a decrease of almost 12,000 farms; but the decrease of over 13,000 tenants and managers was accompanied by an increase of over 3,000 owners. Naturally, tenancy declined in relative importance. Rhode Island and Tennessee also belong in this group.

Group VI is the opposite of Group I; instead of an increase there has been a *decrease* in the number of all the items considered. A change in the percentage is due to a disproportionate decrease in the magnitude of the three items. Illinois, for instance, had a decrease of over 11,500 farms, of which 3,500 were owner-operated, 1,500 were run by managers, and 6,500 by tenants. The relatively greater decrease in the number of tenant farms pushed the percentage down. On the other hand, Alabama lost more owners than tenants and increased its proportion of tenants

thereby. This group of states is found in the Old South but includes Illinois, Kentucky, and Vermont.

The United States as a whole falls in Group IV. Since 1920 there has been a loss of almost 77,000 farms, of

which 57,000 were operated by owners and 28,000 were manager-operated farms. However, for the country as a whole there were only 7,724 more tenants in 1925 than in 1920.

GEORGE S. WEHRWEIN

VALIDITY OF COMPREHENSIVE ZONING

ADVOCATES of comprehensive zoning have been greatly heartened by the recent decision of the United States Supreme Court upholding such an ordinance.¹ Although state courts have upheld such legislation, this is the first time a comprehensive, as distinguished from a piecemeal, zoning ordinance, has reached the highest federal court. The casual reader of the opinion by Justice Sutherland, speaking for the majority, will doubtless say that it is a sweeping vindication of height, area, and use restrictions, despite the dissents of Justices Van Devanter, McReynolds and Butler. Indeed, the apparent approval of the prevention of nervous disorders as a valid public purpose, among others, does give some ground for optimism. But a closer reading will bring to light certain statements which are a warning against unchecked enthusiasm. It must be remembered that the Supreme Court decides no more than it has to, on the facts given in the record. As has happened often in the past, statements in one case which appear to sanction certain conduct turn out to be merely *dicta*. Lay readers are prone to overlook this judicial distinction between what is essential, and what is non-essential, in deciding an issue.

Before hazarding interpretations of the scope of this decision, it will be well to outline Justice Sutherland's

opinion. First, what are the facts? The village of Euclid, Ohio, is a suburb of Cleveland, merging almost indistinguishably into the larger unit. Justice Sutherland in his opinion describes the physical characteristics of the area, particularly the two railways and three boulevards, running parallel, with reference to which many details of the ordinance were decided. The zoning ordinance in question was passed in 1922. It established six classes of use districts, four classes of area districts, and three classes of height districts.

Only the use districts were directly involved in the instant case. The following statement of use restrictions indicates the scope of the ordinance, without being an exhaustive enumeration. The first use district, called U-1, was restricted to single family residences, parks, stations, farms, and the like; U-2 allowed in addition two-family houses; U-3 added multi-family houses, apartments, hotels, churches, schools, hospitals; U-4 included banks, offices, retail and wholesale stores, garages; U-5 allowed billboards, warehouses, and light manufacturing establishments; U-6 added penal institutions, heavy manufacturing establishments, cemeteries, etc. Certain prohibited uses were also specified. The permitted uses were cumulative that is, any structure allowed in U-1 could, of course, be in U-2 to U-6. But no structure specifically permitted in U-4, for example,

¹ *Village of Euclid v. Ambler Realty Company*, 47 Su. Ct. 114 (1926).

could be built in areas designated as U-1, U-2, or U-3.

The appellees, Ambler Realty Company, owned 68 acres of vacant land which came within areas designated as U-2, U-3, and U-6. The company contended that the land had been held vacant for years because it was suited to industrial development, being in the path of such development from Cleveland. It was further alleged that the market value of the land for industrial purposes (U-6) was about \$10,000 per acre; for residential purposes, \$2,500 per acre. The first 200 feet of the parcel back from Euclid Avenue had, it was claimed, a value of \$150 per front foot if unrestricted as to use; but if limited to residential use (U-2) its value was not more than \$50 a front foot. The company also argued that the ordinance kept buyers away, thus constituting "a cloud upon the land."

It is evident that the ordinance took away expected economic values from the owners. The prohibition of certain uses of parts of the tract, particularly the keeping out of business and apartments from the portion nearest Euclid Avenue, reduced the potential value from \$150 to \$50 a front foot. If the owners of the land were free to do as they pleased with their property, this impairment of value would not have taken place. Here was a taking of private rights but was the taking reasonable or unreasonable? The appellees claimed it was unreasonable, a taking of property without due process of law; hence an injunction was sought restraining enforcement of the ordinance. The lower federal court declared the ordinance unconstitutional and an injunction warranted.²

The general issue was whether or

not such a comprehensive zoning ordinance unreasonably invaded private rights to the unhindered use and enjoyment of property. It is essential, however, to state the issue with particularity, in the light of the facts presented. The important specific issue was the reasonableness of keeping business uses and apartment houses out of certain areas declared by public authority to be suited only for residential use, when such a restriction reduced the values of privately owned vacant land by two-thirds. The protection of single family residential districts from the encroachment of two-family dwellings was *not* involved.

Justice Sutherland takes the dynamic point of view toward the issue:

Building zone laws are of modern origin. They began in this country about 25 years ago. Until recent years urban life was comparatively simple; but with the great increase and concentration of population, problems have developed and constantly are developing which require, and will continue to require, additional restrictions in the use and occupation of private lands in urban communities.

Regulations the wisdom, necessity and validity of which, as applied to existing conditions, are so apparent that they are now uniformly sustained, a century ago, or even a half century ago, probably would have been rejected as arbitrary and oppressive. Such regulations are sustained, under the complex conditions of our day, for reasons analogous to those which justify traffic regulations, which, before the advent of automobiles and rapid transit street railways, would have been condemned as fatally arbitrary and unreasonable. And in this there is no inconsistency, for while the meaning of constitutional guaranties never varies, the scope of their application must expand or contract to meet the new and different conditions which are constantly coming within the field of their operation. In a changing world, it is impossible that it should be otherwise.

But although a degree of elasticity is thus imparted, not to the meaning but to the application of constitutional principles, statutes and ordinances which, after giving due weight

² *Ambler Realty Co. v. Village of Euclid, Ohio*, 297 Fed. 307 (1924).

to the new conditions, are found clearly not to conform to the Constitution, of course, must fall.

The court then states the familiar doctrine that police power restrictions of private rights must bear reasonable relation to a legitimate legislative object, such as public health, morals, safety, welfare. But "the line which in this field separates the legitimate from the illegitimate assumption of power is not capable of precise delimitation. It varies with circumstances and conditions. A regulatory zoning ordinance which would be clearly valid as applied to the great cities might be clearly invalid as applied to rural communities." In solving doubts two clews are the ancient maxim, *sic utere tuo ut alienum non laedas*, and the law of nuisances. "A nuisance may be merely a right thing in the wrong place—like a pig in the parlor instead of the barn yard." But the court must consider the particular regulation in the light of particular circumstances in the locality in question.

As Justice Sutherland says, there is no difficulty about regulation of building heights "in order to minimize the danger of fire and collapse, the evils of overcrowding, and the like."¹ Nor is there difficulty about "excluding from residential sections offensive trades, industries, and structures likely to create nuisances," such as fertilizer works,² cemeteries,³ livery stables,⁴ brick kilns,⁵ billboards.⁶ Piecemeal zoning of this type has an obvious relation to public health, safety, or general welfare.

But in the Euclid ordinance exclusion was in general terms and comprehensive, so that inoffensive and non-dangerous industries might be excluded along with the obvious nuisances. On this point the court calls upon a general rule of construction. "The inclusion of a reasonable margin to insure effective enforcement will not put upon a law, otherwise valid, the stamp of invalidity. Such laws may also find their justification in the fact that, in some fields, the bad fades into the good by such insensible degrees that the two are not capable of being readily distinguished and separated in terms of legislation."

Although the exclusion of industries from residential districts causes no difficulty, a serious question is raised by the exclusion of "apartment houses, business houses, retail stores and shops, and other like establishments." "This question involves the validity of what is really the crux of the more recent zoning legislation, namely, the creation and maintenance of residential districts from which business and trade of every sort, including hotels and apartment houses, are excluded. Upon that question this court has not thus far spoken."

Having narrowed the issues down to the real question raised by the facts of the case, the court takes judicial cognizance of the opinions of state courts and of committees of experts. The decisions of state courts are many and conflicting, but those sustaining exclusion of business from residence districts outnumber

¹ *Welch v. Swasey*, 214 U. S. 91 (1909). Compare this decision with *Attorney-General v. Williams*, 174 Mass. 476 (1899), and *Williams v. Parker*, 188 U. S. 491 (1902); *Piper v. Ekern*, 180 Wis. 586 (1923), and *Atkinson v. Piper*, 195 N. W. 544 (1923), and Opinion of the Justices, 234 Mass. 597 (1920). These cases show the line drawn between (1) eminent domain and police power; and (2) esthetic purposes and public health and safety as valid legislative objects.

² *Fertilizer Co. v. Hyde Park*, 97 U. S. 659 (1878).

³ *Laurel Hill Cemetery v. City and County of San Francisco*, 216 U. S. 358 (1910).

⁴ *Reinman v. City of Little Rock*, 237 U. S. 171 (1915).

⁵ *Hadacheck v. Sebastian*, 239 U. S. 394 (1915).

⁶ *Cusack Co. v. City of Chicago*, 242 U. S. 526 (1916).

the others. In the few illustrative decisions cited, Justice Sutherland quotes, apparently with approval, the reasoning by which such exclusion is construed to bear a "rational relation to the health and safety of the community." The bases of this opinion are in part: (1) The health and security from injury of children, resulting from the separation of residences from business; (2) the suppression and prevention of disorder; (3) better fire protection and enforcement of traffic regulations; (4) the cutting down of the "confusion and danger of fire, contagion, and disorder which in greater or less degree attach to the location of stores, shops, and factories"; (5) easier and less expensive construction and repair of streets.

Similarly the court quotes the conclusions of experts who "concur in the view that the segregation of residential, business, and industrial buildings will make it easier to provide fire apparatus suitable for the character and intensity of the development in each section; that it will increase the safety and security of home life; greatly tend to prevent street accidents, especially to children, by reducing the traffic and resulting confusion in residential sections; decrease noise and other conditions which produce or intensify nervous disorders; preserve a more favorable environment in which to rear children."

Apartment houses are particularly mentioned. "... It is pointed out [by these experts] that the development of detached house sections has been greatly retarded by the coming of apartment houses, which has sometimes resulted in destroying the entire section for private house purposes; that in such sections very often the apartment house is a mere parasite constructed in order to take advantage of the open spaces and attractive surroundings created by

the residential character of the district." And when one apartment is followed by others, the normal results are: (1) Interference with sunlight and circulation of air; (2) disturbing noises of increased traffic and business; (3) occupation of a larger portion of the streets, making them unsafe; (4) depriving children of play spaces; (5) finally, "the residential character of the neighborhood and its desirability as a place of detached residences are utterly destroyed. Under these circumstances, apartment houses, which in a different environment would be not only entirely unobjectionable but highly desirable, come very near to being nuisances."

If the opinion had stopped at this point, the most ardent advocates of zoning would have ground for optimism. But Justice Sutherland goes on to say that these considerations justify only in general the regulation embodied in the Euclid ordinance. This is all that need be decided at the moment because the equitable remedy sought by the appellees raised only general objections to the enforcement of the ordinance. Hence, if a more specific complaint is made, the court might find some provisions of the ordinance arbitrary and unreasonable.⁹ In deciding only that the general scope of the ordinance is valid, the court is not inconsistent because "in the realm of constitutional law especially, this court has perceived the embarrassment which is likely to result from an attempt to formulate rules or decide questions beyond the necessities of the immediate issue. It has preferred to follow the method of a gradual approach to the general by a systematically guarded application and extension of constitutional principles to

⁹ For example, the classification of churches and schools with apartment houses and hotels or garages with banks, offices and stores.

particular cases as they arise, rather than by out of hand attempts to establish general rules to which future cases must be fitted."

This opinion is interesting from several angles. To the constitutional lawyer, a new line has been drawn for the scope of police power legislation, and another property right in the use of land has been taken away. Previously a landowner might claim the right to build an apartment house or business structure regardless of the uses to which his neighbors put their land. This right has been struck down by the Euclid decision. The lawyer may be inclined to question Justice Sutherland's application of the law of nuisances, for the object of the ordinance was not to abate existing nuisances (as was the case in the Reinman and Hadacheck cases, cited earlier), but to prevent potential nuisances from coming into existence. Apart from the reasoning of the opinion, lawyers will probably approve or condemn the effect of the decision according to their individual evaluations of the importance of the private rights invaded. Probably none will deny that the conclusion of the court gives greater scope than heretofore to zoning laws.

To owners of vacant land who, despite zoning, hope to realize an increment in value from selling or using it for apartment or business buildings, the decision will naturally be discouraging. But to the more numerous homeowners who want to protect their communities from apartments and businesses, the case will be a blessing.

To the public official the decision holds out hope that all or most of the provisions in the 500-odd zoning ordinances in the United States are valid and will be so held if disputes arise. As to this, one must point to the final para-

graphs of the opinion, in which sweeping interpretations are warned against.

This brings us to the question, which is most interesting from the economic point of view, just how far does the decision go? This may be best shown, perhaps, by stating a suppositious case. Suppose part of the vacant land owned by the Ambler Realty Company fell in U-1, the area zoned against two-family houses; would the court say that duplex houses "came near to being nuisances," as apartment houses were characterized? The influence of two-family houses in a neighborhood is certainly not as aggravating as that of apartment houses. They do not produce the same congestion, traffic hazards, noise, and confusion. There might be some increase of fire hazards, due in part to building on smaller lots for the sake of economy; but area regulations, as in the Euclid ordinance, might avoid this possible difficulty. The remaining ground for justifying the exclusion of two-family houses would be the deterioration of the neighborhood with possible depression of single family residence values. But the court has not specifically approved the stabilization of property values as a valid legislative object by itself any more than it has sustained legislative solicitude for esthetics by itself. It would be interesting to know what the court would say about an ordinance which rested clearly and solely on this basis. Undoubtedly there are some groups in the community whose economic interests are furthered by stable values; but there are those whose advantage lies in rapidly fluctuating values. Which group is more deserving of protection? If public authority may restrain influences tending to increase values, may it not likewise restrain influences tending to reduce values? If this can be done, public authority will

be given a considerable measure of control over the uncertain costs of ripening and decaying real property, which have been one of the major and, in large measure, individually uncontrollable risks of landowners.

Conceivably, the court might find other grounds than the analogy of nuisances and the time-worn public health, safety, and morals to justify excluding two-family dwellings. Stabilization of expectations of future events and conduct is being recognized increasingly as a desirable end of economic policies, both public and private. These stable expectations have economic value. In the case of landed property this is important because the fixity of the investment and the comparatively low rate of capital turnover make it difficult for owners to adapt themselves to rapid changes without risk of great economic losses. Such losses are economic wastes having both individual and social significance. A public policy designed to minimize such wastes would seem to be in the public interest, even though it cut down some individual rights. Zoning of the Euclid type is one method of realizing this purpose, since it restrains the self-seeking few from arbitrarily upsetting the expectations of the many property-owners in a neighborhood. The upset occasioned by an apartment house invasion is only one degree removed from that brought about by the invasion of duplex dwellings into a hitherto single family residence neighborhood. The duplex dwelling may not

be a nuisance in the legal or economic sense, but it is a threat to stable expectations of the future character of a neighborhood which cannot easily be controlled by individual action. As such, it would seem to come within the scope of the legal maxim, *sic utere tuo ut alienum non laedas*.¹⁰

The constitutional limits of use regulation by zoning and planning laws may profitably be compared with the similar limits of rent regulation. Temporary rent control under scarcity conditions was upheld as an emergency measure,¹¹ which was, however, unwarranted when the emergency passed.¹² Emergency rent control went to the "verge of the law" in Justice Holmes' opinion.¹³ In the Euclid ordinance the landowners alleged that two-thirds of the prospective value of part of their property was taken away by the indirect means of restricting uses; and the ordinance was not an emergency measure. One is disposed to wonder if the direct control of land income in the rent legislation was in effect any more drastic than the indirect control of capital value under the Euclid zoning ordinance.

Even if the Supreme Court has not established a new "verge of the law" in comparison with rent control, its opinion on use control seems to go further than before. Until a more definite opinion is given, the supporters of zoning ordinances may take heart and should redouble their efforts in behalf of sound, non-political administration.

E. W. MOREHOUSE

¹⁰ If in future decisions the court sanctions public protection of single family residences, it will be interesting to examine the possibility of taking the ultimate step in use regulation—namely, prohibiting the development of land in advance of needs. This would involve controlling the rate of land development to prevent the economic and social waste of premature subdividing. On the control of land destined for public uses such as streets and parks see the *Report of the Eighteenth Na-*

tional Conference on City Planning (Wm. F. Fell Co., Philadelphia, 1926), pp. 49 ff.

¹¹ *Block v. Hirsch*, 256 U. S. 135 (1921); *Holding Company v. Feldman*, 256 U. S. 170 (1921).

¹² *Chastleton Corporation v. Sinclair*, 264 U. S. 543 (1923).

¹³ *Pennsylvania Coal Company v. Mahon*, 260 U. S. 393 at 416 (1922).

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